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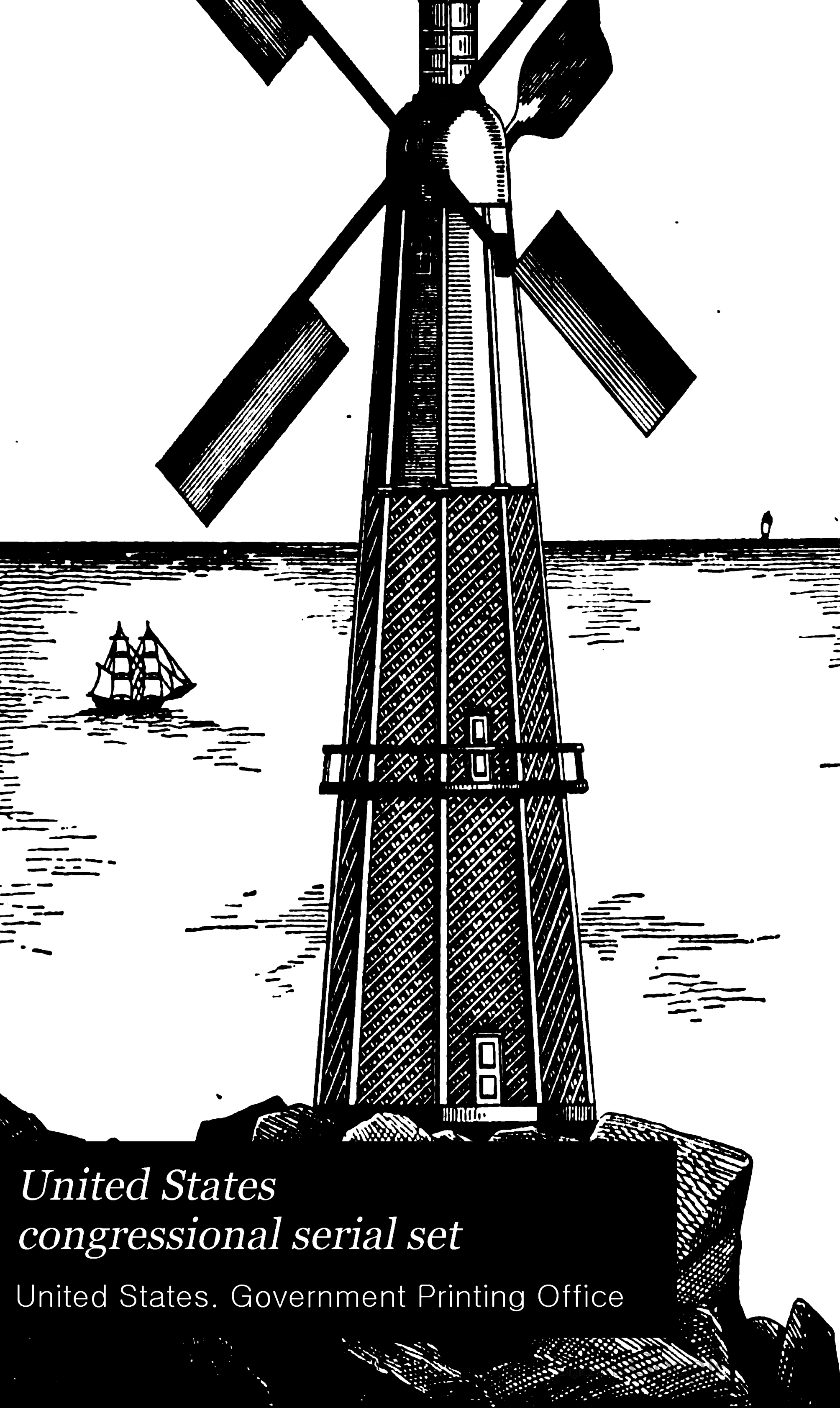

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MISCELLANEOUS DOCUMENTS

OF THE

HOUSE OF REPRESENTATIVES

FOR THE

26.2 –

SECOND SESSION OF THE FIFTY-FIRST CONGRESS.

(1890-'91.)

WITH INDEX.

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1890.

CONSULAR REPORTS

ON

COMMERCE, MANUFACTURES, ETC.

No. 120.--SEPTEMBER, 1890.

BRAZILIAN-AMERICAN TRADE.

REPORT BY MINISTER ADAMS, OF RIO DE JANEIRO.

During my eight months residence in Brazil all the principal ports except one, which is in the extreme south, were visited by me, including Para, Pernambuco, Bahia, Rio, and Santos. Many of the principal railways were traversed, and the great coffee districts of the provinces of São Paulo, Minas-Geraes, and Rio de Janeiro, were examined. In the first-named province the Marquis de Tres Rios opened his fazenda to entertain our party, especially that we might see the cultivation of the coffee tree under the new order of labor drawn from an Italian colony in the place of that of slaves. Of course it takes time to adapt the method to the new system, but the planters are discovering that paid labor is cheaper in the end than that of slaves. In passing through the coffee districts, the traveler can not fail to be impressed with the importance to the wealth of Brazil of this great staple, and with the almost unlimited resources in the still uncultivated lands. It is the export of this berry to the United States which turns the balance of trade so heavily against us, seeing that we buy nearly two-thirds of the crop. Rubber, of which we bought 19,592,897 pounds, valued at $7,569,005.00 in 1888, is the second item of importance as an export. Our interest in this commodity was recently threatened by the imposition of an export tax by the State of Para. An urgent protest by this legation led to negotiations which culminated in withdrawal of the tax by the Central Government. These facts naturally raise the inquiry, why, with all our wealth of products, we do not sell more to Brazil. We buy from that nation $60,000,000 and sell it only about $7,000,000.

The three principal things needed to increase our sales, are increased transportation facilities, better mail service, and direct telegraphic communication. Let attention be called respectively to these needs. Brazil is endowed with good harbors, located at convenient distances apart, easy of entrance, and although the loading and discharging cargoes is by means of lighters, still the facilities for commerce are sufficient. The system of railways and internal navigation is fairly good, especially in the coffee and rubber districts. The balance of trade is against Brazil as regards England, Germany, France, and Italy, and diligent investigation can find but one cause, namely, their superior means of transportation. It is not a question of the free-trade policy of England, for while in former years the monopoly of steam communication enjoyed by England insured her a monopoly in many branches of trade, that monopoly has been broken in upon by the protectionist nations, France, Germany, and Italy, who of late have aided their steamship lines with subsidies. England by reason of the policy of the nations named has lost much of her trade with Brazil, especially in cotton and woolen goods. At Pernambuco and Bahia English goods have been driven out of the market and serious inroads have been made at Rio de Janeiro. The United States formerly controlled the trade with Brazil in cotton prints, but this has been lost entirely through the want of direct communication. Our goods were shipped via England, and her manufacturers taking advantage of this fact imitated the prints in those of inferior quality, broke down the reputation of American brands, and then secured the market for themselves. In blue jeans so superior was the American make that it was impossible to oust them, and we still hold command of the market. Indeed as to these goods, during my stay in Brazil merchants complained that they could not get their orders for American jeans filled promptly. That the establishment of steam communication tends to promote trade is evidenced by the fact that companies often find it profitable to put on additional steamers without additional aid from the Government. The increased facilities for passenger traffic and better mail service are important factors in developing trade. A merchant representing a Georgia cotton mill recently visited Brazil in the interest of his firm. He was in the beginning disheartened by the freight rates from the United States, and when desiring to return home he was compelled to take the route via England and upon entering Plymouth Harbor he was shown sixteen steamers and ships loading for South American ports, his feelings turned to that of despair. The Phœnix Iron Company was once obliged to ship an iron bridge contracted for in South America on steamers traversing the Atlantic ocean in opposite directions to reach their port of final destination. Merchants were formerly annoyed and often delayed by the necessity of procuring passports, and having a visé upon them before they could leave Brazil. The provisional government at the earnest request of this legation has removed this requirement. Special attention is called to the report on shipping in which the subject is set forth more in detail.

The present mail service between the United States and Brazil is disgraceful; no other term applies. Practically one steamer a month sails from New York for the ports of Brazil. Letters mailed the day after the steamer has sailed, unless marked via Europe lie in the New York office till the sailing of the next steamer, thus taking forty to fifty days in reaching Rio de Janeiro. Newspapers come in batches of nearly a month's issues at a time. It is idle to expect increase of trade with a country from which it takes fifty to seventy days to get a reply to a letter. This state of the postal service might not be so injurious if there existed good telegraphic communication between the two countries. There are two lines which finally reach the United States after a most tortuous route. First, the Western and Brazilian, which arrives at England via Spain; second, the Central and South American, which, from Galveston, Tex., runs down the west coast of South America to Chili, thence crosses the continent to Buenos Ayres, its terminus. Negotiations were being energetically conducted through this legation with the imperial government to secure permission for the extension of the Central and South American line to Rio de Janeiro, but these negotiations ended with the fall of the Government. The service on both of these lines is frequently interrupted, owing to their extreme length and exposure, and the rate of nearly $3 a word bars their frequent use. The provisional government has granted a concession to the Compagnie Francaise Maritime to lay a cable from the northern coast of Brazil to France, with a branch to Key West, Fla. It is to be hoped that this will improve the service and cheapen the rates. What is needed is direct service under American control, free from foreign espionage, both for commercial and diplomatic use. There are obstacles in the way, owing to former concessions granting monopolies, and to a disposition on the part of Brazil to force the using of her land lines, but time will show that the advantages to be gained by direct service will over-balance the benefits of the revenue to be derived from an enforced usage of the present lines. That trade can be secured by the United States when proper effort is made is evidenced by the practical monopoly enjoyed by the Baldwin locomotives, by the Singer sewing-machines, and by the Ledgerwood agricultural implements. So great is the demand for the latter that they have erected factories in Brazil for their manufacture. To secure trade the methods of Brazil must be conformed to. Long credits, six, nine months, and a year are demanded. Collections by the retailers are slow; not that the debts are bad, but the climate itself makes all action by the people deliberate, hence the wholesale houses must have time. The taste of the people in goods must be studied and catered to. The goods must be on the spot and tastefully exposed, and showy wrappers are an aid to sales. It is impossible to sell by samples. Goods must be made in piece of the length to suit purchasers. The tariff also must be consulted, as the duty on some goods is on the piece. Goods for the interior must be done up in packages of a size suitable for transportation by pack trains.

The results of active and direct efforts to push trade in Brazil may be appreciated from a single illustration. An American agricultural implement manufacturer sent an agent with a machine. He gave an exhibition of the machine's qualities, inviting the president of the botanical gardens and other distinguished people to witness the trial. An interpreter was present to explain. Twelve machines were sold on the spot; two well-known houses competed for the agency and orders flowed in so rapidly they had to be refused.

The present cordiality of relations with Brazil offers an excellent opportunity to increase our trade. The prompt resumption of diplomatic relations by the United States—the first nation to extend the hand of fellowship to the new republic—followed by the formal recognition, has engendered a hearty sympathy on the part of the people. The recent Pan-American Congress has greatly aided that feeling. The late difficulty between England and Portugal naturally excited the sympathy of Brazil for its mother country. Leagues were formed to "boycott" English goods and resolutions were passed calling attention to America as a market in which to buy. With the proper action on the part of the Government of the United States in aid of transportation facilities (which facilities insure better mail service) and with the establishment of a direct cable the commercial relations could be vastly improved, and the balance of trade made less unfavorable for our country.

ROBERT ADAMS, Jr.,
Minister.

UNITED STATES LEGATION,
Rio de Janeiro, June, 1, 1890.

CARRYING TRADE OF BRAZIL.

REPORT BY MINISTER ADAMS, JR., RIO DE JANEIRO.

SHIPPING.

The commerce of Brazil is great and growing. It is a matter of regret that so little of it is in the hands of citizens of the United States, and the small part which they have in it is apparent from the table hereto annexed, which has been carefully compiled in order to show the steam ocean service with Brazil supplied by the maritime nations of the earth.

Trade between the United States and Brazil has lately developed to such an extent that there can be but little doubt that it would quickly assume enviable proportions if there were more frequent and rapid steam communication between the two countries.

There is no lack of steamers departing from Brazil for the United States, but there is great disparity in the number of those making the return passage. The service now carried on by the American line is very insufficient, and the time of passage should be much reduced. The time between New York and Rio de Janeiro, including the stoppage at ports of call, ought not to occupy more than twenty-four days. No better illustration of the harm due to infrequent departures from New York can be given than by citing a recent case in which goods were ordered by cablegram from the United States. The sender of the order was informed in return that the first conveyance would be in a steamer which was at the very moment in the port of Rio loading for New York. This meant roughly that the goods would arrive in Rio in about sixty-two days. The result can be imagined; the goods were ordered from Europe.

The present service of the American line should be improved so that the departures from New York should be increased to at least two per month, and the time of passage of one steamer per month should under no circumstances exceed twenty days between New York and Rio de Janeiro. The needs of the times demand speed. It is altogether wrong that mails to Rio by direct steamer from the United States to Brazil should take twenty-seven days in transit, while other mails via Europe reach that port in twenty-three days. Of course it is well known that increased speed necessitates great increase of expenditure, and a fast service between the United States and Brazil could not probably be kept up without some assistance from the Government. The facts would seem to bear out this opinion, seeing that all steam lines hitherto established to and from the United States without subsidy have failed. The homeward employment is unremunerative owing to competition, excessive cost of handling cargo, and the limited passenger movement, and however satisfactory may be the outward earnings, they are more than absorbed by homeward expenses.

Recurring to the table, the number and shortness of voyages between Europe and Brazil, as compared to those between the United States and Brazil, is most striking. The three principal packet lines trading to Brazil each make one passage per month to Rio in fifteen, seventeen, and nineteen days respectively (delay due to calls included) from Bordeaux, Southampton, and Liverpool, but it must not be forgotten that these lines are subsidized, and in addition they get the benefit of the very large passenger traffic between Brazil and the old countries, which does not extend to the United States, the American lines being deprived of this most important element of profit.

England has a virtual monopoly of the world's carrying trade, because she has always been ready, and is still ready, to assist new packet lines until such time as they become self-supporting.

France is also doing much to increase her mercantile marine by the mileage bounty system and the tonnage bounty to builders, and a single case only need be cited to show the effect of the policy. The Chargeurs

Reunis Company a few years ago operated between Rio and Havre with a small fleet of sailing vessels. They now possess twenty-four fine steamers, making three round voyages per month between Rio and Havre, and they also maintain a direct service to the Plate River ports.

The German Government is giving active support to steam lines, and is doing everything possible to encourage home building, as is evidenced by the recent construction in Germany of some large and magnificent steamers, which are to be subsidized.

If the United States wishes to secure her share of trade with Brazil, the Government must give such assistance as will secure a proper and efficient steam service between the two countries. The Anglo-Portuguese differences (the majority of tradesmen in Brazil are Portuguese) and the change of form of government of Brazil offer the United States a fair opportunity, of which it would be wisdom to take advantage.

ROBERT ADAMS, JR.,
Minister.

UNITED STATES LEGATION,
Rio de Janeiro, June 1, 1890.

Abstract of steam-ship communication with Brazil.

Name of company.	Flag.	No. of steamers owned by company.	Average gross tonnage steamers Brazil trade.	Passenger accommodation.			No. of regular voyages per month.		No. of calls in Europe.		Ports of call in Brazil, outwards and homewards.	Average time of passage
				First class.	Second class.	Third class.	Outward.	Homeward.	Outward.	Homeward.		
												Days.
Royal Mail Company	British	24	3,800	150	25	500	2	2	2–3	2–3	Pernambuco, Maccio, Bahia, Rio, Santos	20
Pacific Steam Navigation*	do	41	4,100	150	50	700	2	2	3–4	3–4	Pernambuco, Bahia, Rio	22
Liverpool, Brazil, and River Plate	do	42	1,800				6	6	1		Bahia, Rio, Santos	24½
Do	Belgian	10	2,500	60	10	100		4	1	1	Rio, homewards only	
New Zealand Shipping Company	British	5	4,300	100	40	150		1		1	do	
Shaw, Savill and Albion Company	do	5	5,000	100	50	180		1		1	do	
Antwerp Direct Line	do		1,400				1				Rio Santos	28
Antwerp and London Line	do		1,400				1				do	28
Messageries Maritimes	French*	58	4,600	110	150	620	2	2	1	1	Pernambuco, Bahia, Rio	18
Société Générale	do	17	3,000	50		1,200	1	2			Rio Santos	24
Chargeurs-Rénnis	do	24	2,200	20		60	3	3	1	1	Pernambuco, Bahia, Maccio, Rio, Santos	26
National de Navigation	do	8	3,700	60		1,200	1	1			Rio	22
Hamburg Steam-ship Line	German	29	2,300	40		100	5	8	1	1	Pernambuco, Bahia, Rio, Santos	24½
North German Lloyds	do	65	2,400	70		1,000	2	2–4	1	1	Bahia, Rio, Santos	24
La Veloce Company	Italian	5	2,500	20		1,400	1	1			Rio, Santos	24
Navigazione Italiani	do	109	2,400	20		1,400	1	2			do	24
Austrian Lloyds	Austrian	83	2,000	20		1,000	1	1			Pernambuco, Bahia, Rio, Santos	39
Adriatic Steam-ship Company	do	10	1,400				1–2	1–2			do	35
United States and Brazil Mail Steam-ship.	American	3	2,600	60		50	1	1			Pernambuco, Maranham, Pará, Bahia, Rio, Santos.	27
Hamonia Line	German	5	2,300				1	1			Pernambuco, Bahia, Rio, Santos	34
Cia. Brazileira	Brazilian	7	1,900	100		500	3	3			North ports, as far as Manaos	
Nacional	do	11	1,000	70		400	3	3			South ports and rivers	
Bahiana	do		400	30		30					Intermediate ports south of Bahia	
Pernambucana	do		400	30		30					Intermediate ports north of Pernambuco	
Maranhense	do		160	20		20					Intermediate ports south of Maranham	
Transatlantica†	do											
Araguaya	do											
Amazon Steam Navigation	do											

*Alternate steamers only call at Rio outwards and homewards. Excess of homeward sailings over outward arrivals explained by steamers to Plate direct, calling at Rio on homeward voyage. Arrivals from the Mediterranean increase greatly during busy passenger seasons. Rio is also frequented by a great many cargo steamers from different ports. A number of smaller coast lines, in addition, are also subsidized by Brazil to the extent of $60,000 per annum. The northern ports of Brazil are served by frequent arrivals from Europe and the United States of steamers of the Booth, Red Cross, Harrison and Liverpool, Brazil and River Plate Companies. A government decree has just been issred, authorizing the foundation of a Brazilian Lloyds. Present subsidies and favors will be continued to such lines as enter it until 1906. Time of average passages during 1890 will be reduced, as all companies have increased speed of steamers. All passages are timed to Rio.

†In construction four steamers under admiralty inspection; cruiser standard; will ply to Europe.

Abstract of steam-ship communication with Brazil—Continued.

Name of company.	Sails from—	Destination homewards.	Extra voyages.	Remarks.	Amount of subsidy per annum.	By whom paid.	Engaged also in other trades.
Royal Mail Company	Southampton	Southampton	As required	Voyages continuous to Plate.	£96,000	England	Sundry.
Pacific Steam Navigation*	Liverpool	Liverpool	do	Voyages continuous to Pacific.	Uncertain	Chili and Australia.	West Coast and Australia.
Liverpool, Brazil, and River Plate.	Liverpool and London.	Liverpool via United States.	do		None		Sundry.
Do	London and Antwerp.	Antwerp	do	Outward direct to Plate	£10,000	Belgium	Do.
New Zealand Shipping Company.	New Zealand	London		Outward direct to New Zealand.	Uncertain	New Zealand	Do.
Shaw, Savill and Albion Company.	do	do		do	do	do	Do.
Antwerp Direct Line	Antwerp		As required	Chartered steamers only			
Antwerp and London Line	Antwerp and London.		do	do			
Messageries Maritimes	Bordeaux	Bordeaux	do	Voyages continuous to Plate.	23,000,000 francs	France	China, etc.
Société Générale	Marseilles	Marseilles	do	do	£30,000	do	Sundry.
Chargeurs-Réunis	Havre	Havre	do		£40,000	do	Do.
National de Navigation	Marseilles	Marseilles	do	Voyages continuous to Plate.	£20,000	do	Do.
Hamburg Steam-ship Line	Hamburg	Hamburg	do	Also direct to Plate	None		And direct to Plate.
North German Lloyds	Bremen	Bremen	do	do	Uncertain	Germany	Sundry.
La Veloce Company	Genoa	Genoa	do	Voyages continuous to Plate.	None		And direct to Plate.
Navigazione Italiani	do	do	do	Voyages continuous direct to Plate.	Uncertain	Italy	Sundry.
Austrian Lloyds	Trieste	Trieste	do	Only Rio on return	do	Austria	Do.
Adriatic Steam-ship Company	Fiume	Fiume	do	do	None		Do.
United States and Brazil Mail Steam-ship.	New York and Newport News.	New York			$90,000	Brazil	
Hamonia Line	New York	do	As required	Only Rio on return	None		
Cia. Brazileira	Rio	Rio			$296,600	Brazil	
Nacional	do	do			$310,000	do	
Bahiana	Bahia	Bahia			$77,500	do	
Pernambucana	Pernambuco	Pernambuco			$70,000	do	
Maranhense	Maranham	Maranham			$85,000	do	
Transatlantica†					$150,000	do	
Araguaya				River navigation	$62,500	do	
Amazon Steam Navigation				do	$387,000	do	

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*See note on page 7.

† In construction four steamers under admiralty inspection; cruiser standard; will ply to Europe.

BRAZILIAN RAILWAYS.

REPORT BY MINISTER ADAMS, OF RIO DE JANEIRO.

The last official report which treats of the railways up to December, 1887, was printed and distributed in 1888, since which time there is no report, owing to the fall of the conservative ministry in June, 1889. Before the new minister of agriculture could prepare for the general assembling of deputies in November the transformation of the country from a monarchy to a republic took place, on the 15th of November, 1889.

The construction of Brazilian railways is a process long in time, and the number of miles to be added to bring things up to date is small.

The Government for the past few years has attempted to get clear reports of the railways in Brazil, but unfortunately has only in part succeeded, and excepting as to the lines owned by or under the immediate control of the State, the reports are very incomplete; in fact in many cases not even the capital of the company is given.

There are eighty-four railways in Brazil:

No. of lines.	Owned by and conditions.	No. of miles open.
14	State	1,258
17	Private companies with general government guaranty of interest	1,616
18	Private companies with provincial government guaranty of interest	970
25	Private companies without guaranty of interest	1,348
10	Suburban unguarantied lines	112
84		5,304

Of this number, forty-nine either belong to the Government or are sustained more or less by its guaranty of interest, and taking the extension in view, 72 per cent. of the total length belong to or are aided by the State.

There are seven different gauges, with lengths of line of each gauge as follows:

Gauge:	Miles.
5 feet 3 inches	846
4 feet 8 inches	8
3 feet 7¼ inches	95
3 feet 3⅜ inches (1 meter)	3,981
3 feet 1⅜ inches	234
2 feet 4⅜ inches	136
2 feet 2 inches	4
Total	5,304

Besides this length of railways in operation there were at the time of the report 873 miles under construction, of which 500 are now completed, to which must be added 100 or more miles of railway of 2 feet gauge, a class of line coming into use in the provinces of São Paulo, Rio de Janeiro, and Minas Geraes.

Thus the Brazilian system of railways in operation comprises about 6,000 miles, and in contemplation, with the plans approved, about 2,500 more. All the new lines now being made are either of the meter (3 feet 3⅜ minutes) gauge or the agricultural gauge of 2 feet.

Although 6,000 miles of railway for a population of 12,000,000 is not very disproportionate, it sinks into insignificance when compared with the vast country known as Brazil, which is equal in size to the United States. There are, however, several physical reasons which tend to make progress in the construction of railways very much slower in Brazil than it is in the United States, all of which latter country is comprehended within the temperate zone, whereas more than two-thirds of Brazil is within the tropics. Entering into a closer view, it will be seen that there are four distinct agricultural districts in Brazil:

First. The Pará and Amazonas district, the chief export of which is India rubber, which is collected mostly by Indians and half-breeds in forests where a white man finds it difficult to exist.

Second. Pernambuco Alagoas and Bahia district, where sugar-cane is quite at home and some of the tropical fruits flourish. This part of Brazil fifty years ago was the great mainstay of the Empire, whereas now, owing to inability to compete with beet-root sugar and the still more vigorous growth of sugar in the West Indies and other parts, this district has had to give way to other states and provinces in being the prime supports of the country.

Third. The coffee district of São Paulo, Rio de Janeiro, and Minas Geraes, where is grown three-fourths of the coffee consumed in the world.

Fourth. The district of Santa Catharina Paraná and Rio Grande, which is too near the tropics to produce well the temperate zone fruits, the chief products being cattle and a little corn in some places.

In Pará and Amazonas, in which provinces the special traffic is in rubber, which is gathered here to-day, there to-morrow, railways could not well be extended and made to pay; as a fact they do not pay, there being only about 80 to 100 miles of line all told in these provinces.

The lines of the second district are almost absolutely dependent on the Government for their interest on capital borrowed. When the price of sugar is high, and there happens to be a little extra energy in the people, plantations are opened out, and the following year the railways make a little money towards paying interest on the capital expended. Should the price then become low, the old languor of life in a soft climate comes back, and next year the very rails of the railway rust for want of use.

The third or coffee district has an important system of railways, the greater part of which pay interest on their capital, and not a few in the province or State of São Paulo are renouncing the guaranty of interest granted by the Government, the companies finding it more profitable to submit to fluctuations in the rate of dividend in consideration of being free from Government interference. As coffee is a most valuable product, it can bear a high freight charge, and the companies do not fail to take advantage of this, charging from 10 to 13 cents per ton per mile. With such charges it is not to be wondered at that when there is a large crop some of the private companies pay as much as from 12 to 18 per cent. The principal Government line, "The Central," which runs through the States of Rio de Janeiro and Minas Geraes, although it is burdened by a huge staff of officials and its system of accounts is most complicated and hurtful, manages to pay a round 5½ to 6 per cent. on the capital spent in its construction.

At the present time the coffee-growing provinces of São Paulo, Rio de Janeiro, Minas Geraes, and Espiritu Santo not only maintain the revenue of the country, but also have systems of railways which pay the interest on their capitals out of their receipts, and not out of the Government treasury.

The fourth district at present offers little attraction to the shareholder in railways. The chief product of the district is cattle, which finds its way to the sea-shore on its feet, and the growth of cereals seems at a standstill. From these two circumstances the railways in this district have thus far been non-productive.

It would seem, therefore, that the further development of railways will be in the third district in those states which border on the tropics and produce coffee; and later, in the fourth district when under wiser immigration laws and an easier law for the transfer of landed property a current of immigration is turned towards the south of Brazil.

In their general features the railways are built on American principles, for not only is the bogie in general use for passenger and freight cars, but with the exception of the lines owned by Europeans there are few railways which have not some American locomotives. Especially good results have been obtained from the narrow-gauge locomotives built by the Baldwin Locomotive Works, in Philadelphia, and on the Government lines all new engines are ordered from the United States.

The very high freight charges can not be severely criticised, because, where the traffic is very small, it occurs naturally that the charges must be high, and even with these exorbitant rates many lines drag along hardly paying their way. The enormous advantages of a temperate climate, such as that of the United States, can not be over estimated; there, every kind of cereal can be grown, and in the Southern States sugar-cane, tobacco, cotton, etc., can be raised, whereas in Brazil the products are chiefly tropical, which is to say, of limited cultivation and demand.

If Brazil were able to produce as is the United States, then would her railways leap forward, and instead of a few thousand immigrants she would receive a half million yearly. Of late years the cultivation of the vine has been largely taken up in the provinces of Rio and Sã Paulo. If the ripening season should be suitable, there is some prospect of a considerable traffic in this branch of industry.

There ought to be a quite considerable traffic in lumber in parts o the third and fourth districts, were not the railways obliged to climb the walls of the Seara do War mountains. The line from Rio de Janeiro to the center of Minas Geraes drags its way up the mountains until it reaches a gap 2,000 feet above the city; then it winds away along river valleys among the mountains towards Minas Geraes. From the port of Santos the trains of cars are hauled through the mountains by wire ropes up steep inclines 2,500 feet, then the locomotive drags them through a rolling, hilly country inland to the coffee district, 150 miles beyond. From Paranagua also, the port of the state of Paraná, the railway curves and turns, twists and bends its way up the same mountain chain, to a similar height, to encounter a similar formation of hills and dales.

This ridge of hills to be overcome before the producing land is met is no trifling matter, and considerably increases the first cost of construction of the lines and afterwards the cost of working.

Far away inland in the provinces of Goyaz and Matto Grasso are indications of rich gold formations; there also tropical vegetation is at its best. To these lands, therefore, it seems that the railways should be extended, having at least one grand trunk line from the coast, broad gauge and large enough to carry at small cost the timber and the corn, the cotton and the sugar, said to be so vigorous in Goyaz. Such a line is needed, but it could not pay its interest for the first year, and the Government would do well to grant it aid so as to open up the unknown riches of their great land.

ROBERT ADAMS, JR.,
Minister.

UNITED STATES LEGATION,
Rio de Janeiro, June 1, 1890.

CANADIAN BARLEY FOR AMERICAN BREWERS.

REPORT BY CONSUL MONAGHAN, OF HAMILTON.

My predecessor, in his last report, undertook to account for the marked falling off in the export of barley by quoting from Canadian authority on the subject, to the effect that "the lessened demand is attributed by growers to the tendency upon the part of American brewers to use inferior or mixed grades," and added: "For years there has been a demand for Canadian barley because of its bright color, imparting a brighter and richer color to the beer." Not being a connoisseur of the beverage, I am unable to say to what extent Canadian barley improves our American beer, but I believe that brewers who are charged by the

"Canadian growers" with the "use of inferior or mixed grades" might get on very well without the Canadian commodity, and by the continued "use of the inferior or mixed grades" induce the American farmer, to improve the character of the "inferior home product;" having much the same character of soil and very much the same climate (as that of which Ontario boasts) in our northern tier of States, it would seem that "two-rowed" barley equal to any raised in Canada might be reproduced, when it becomes an object to do so by reason of the increased demand for it. But however much American barley may improve in quality, I suspect that Canadians will continue to believe that their product is superior, and even now, notwithstanding the proposed duty of 25 cents per bushel, the Canadian press says "their barley will remain in demand across the border." The same authority says that the tariff bill before Congress "is a matter of very little interest to us, inasmuch as the number of articles produced in this country, especially agricultural products, which can find a market in the States is very limited, except barley." It is no wonder that the last-named article is excepted in their claim of indifference when it appears that the "growers who had lost their trade," according to my predecessor's estimate, sold for export to the United States last year $7,721,000 worth of that particular article. Of course, that is a small item for the rich Canadian farmer to lose. I am glad that the farmer "across the border" will henceforth keep that little plum at home, as it will add to the income and aid greatly "about tax time." Nor will the "Yankee farmer" object to the absorption of the further trade about which our Canadian friends manifest so little concern, because of the "limited number of articles" for which they find a market in the United States, with which our farmers have to compete, and which displaces their products to the amount of nearly $13,000,000, and increasing every year, add to this sum the amount which our Canadian friends realize on the barley exported and we find an aggregate of about $20,000,000 lost to our farmers for products which they produce in excess of home consumption.

WILLIAM MONAGHAN,
Consul.

UNITED STATES CONSULATE,
Hamilton, July 26, 1890.

CANADIAN TAXATION.

REPORT BY CONSUL MONAGHAN, OF HAMILTON.

The following statistics are gleaned from the Spectator, an able "conservative" newspaper published in this city. The revenue of the Dominion for the fiscal year just closed was $38,843,173, an increase of $1,447,672 over 1888–'89, of which nearly $9,000,000 is derived from taxation. Taxes have increased in the Dominion from $3.50 per head to about $5.50 per head of the population, in the last twenty-three years, or since the confederation in 1867, when the debt of the Dominion was $76,000,000 and the population about 3,200,000, which is now supposed to be about 5,250,000. At the date of the confederation the area was 420,000 square miles; it is now 3,500,000 square miles.

Foreign trade in 1868 was $131,000,000, and $204,000,000 in 1889. In 1868 there were 3,538 post-offices in the whole Dominion; in 1889 the number was 9,838. The letters carried increased from 18,000,000 to 92,000,000; the revenue from $1,024,000 to $3,321,000; the miles of postal routes from 27,674 to 56,838; the annual mail travel from 10,600,000 to 25,700,000. The railway mileage has increased from 3,000 to 13,000.

Speaking of railroads, I desire to say before closing this report that a road is projected from Waterford, through Brantford and this city, to Welland, where it will connect with the Michigan Central system; distance from Waterford to Welland 118 miles. This road, which is under construction in this city, will connect Hamilton and Buffalo, and Hamilton and Toronto, with a line which will compete with the Grand Trunk. The people in Hamilton feel the need of a competing line sufficiently to induce them to vote the Toronto, Hamilton and Buffalo, the projected railway, $275,000, to aid in the construction of said road to and through the city of Hamilton to the points named.

WM. MONAGHAN,
Consul.

UNITED STATES CONSULATE,
Hamilton, *July* 26, 1890.

CANADIAN FISHERIES.

REPORT BY CONSUL TANNER, OF PICTOU.

FISH CATCHES AND FISH DESTRUCTION.

The herring catch of Scotland has been estimated at 1,000,000 barrels per annum. Referring to this the Royal Commission of 1878 says:

> Think what this prodigious take represents. A barrel of herrings contains, on an average, 750 fish; but as a certain number of fish are wasted in the operation of curing, 800 fish must be reckoned for every barrel of herring cured; 800,000,000 herrings must be taken annually by Scotch fishermen alone. The Norwegian herring fishery is more productive than the Scotch fishery. The English, Irish, French, and Dutch fisheries are also very productive. Estimating the gross produce of these four fisheries at only the same amount as the Scotch fishery, 2,400,000,000 herrings must be annually taken by four nations, the British, French, Dutch, and Norwegians, or in other words, two herrings for every man, woman, and child in the world.
>
> But prodigious as this computation is, there are grounds for believing that the destruction of herring by man sinks into insignificance if compared with the destruction effected by enemies over which man has no control whatsoever.

Consider, on trawling for herring on the coast of Scotland, of the destruction of large herring by cod and ling alone. It is a very common thing to find a codfish with six or seven large herrings, of which not one has remained long enough to be digested in the stomach. If, in order to be in bounds, we allow a codfish only two herrings per diem, and let him feed on herrings for only seven months in the year, then 2 herrings × 210 days = 420 herrings in his allowance during that time. In round numbers 3,500,000 cod, ling, and hake, were taken in Scotland alone in 1876. It would be a great exaggeration to suppose that one cod was taken out of every 20 in the sea, but assuming that 5 per cent. of the cod in the sea were actually caught, 70,000,000 cod, ling, and hake must have existed off the coast and islands of Scotland. If, however, each of these 70,000,000 cod, ling, and hake consumed 420 herrings in a year, they must altogether have consumed 29,400,000,000 herrings, or twelve times more than all the herrings taken by the Scotch, English, Irish, French, and Norwegian fishermen put together, and nearly thirty times as many herrings as are taken by the Scotch fishermen alone.

The destruction of herring by gannets is enormous. It is estimated that on Ailsa Craig alone there are 10,000 gannets. Assuming that each bird only consumes six herrings a day, the gannets on Ailsa Craig alone must devour 60,000 herrings a day, 1,800,000 a month, or 21,600,000 a year. On the modest assumption that there are 50 gannets in all the rest of Scotland for every one on Ailsa Craig, the Scotch gannets alone must consume more than 1,110,000,000 herrings a year, or 37 per cent. more than all the Scotch fishermen catch. These are by no manner of means the only enemies to which the herrings are exposed. Whales, porpoises, seals, dogfish, perch, and predaceous fish of every description are constantly preying upon them from the moment of birth. Shoals of herrings in the ocean are marked by the flocks of gulls numbering hundreds of thousands, which follow them and are constantly feeding upon them, and it seems, therefore, that man does not destroy one herring for fifty which goes to other enemies.

When it is considered that the catch of herrings on this continent is not taken into the above computation, and that the Newfoundland and Nova Scotia coast are the favorite resorts of these fish, and that the number must be far greater on the North American coast than in the entire European continent, then the herring populations of the sea according to this modest estimate must border on the wonderful. There must, according to the above estimate, be more than thirty-two billions of herring in the ocean, a number that surpasses the grasp of the human mind by its vastness.

What must not the wonders of the sea be when one of the many fish tribe which populate it is found to be so numerous?

But the wonderful vastness of the population of the sea does not stop here. In the last excellent report of the Commissioner of Fish and Fisheries I find the following:

In the first volume of the reports of the U. S. Fish Commission, I endeavored to estimate the amount of food devoured by a single species, the blue fish, which occurs in such overwhelming numbers on our coast. Here, taking 1,000,000 fish as the annual consumption in the New York market and assuming the total number of these fish on our coast to be 1,000,000 of 5 pounds each, which may be regarded as an exceedingly moderate calculation, we may consider the amount of other fish that this body of marine wolves will consume. Allowing 10 fish per day, which is a moderate estimate, the total destruction daily would be 10,000,000, which in one hundred and twenty days of their abode on the eastern coast of the United States would give 1,200,000,000,000 of fish taken in this part of the season alone. It is not an extravagant presumption that each bluefish devours half its own weight of food per diem; and we should therefore have a total destruction of 2,500,000,000 pounds daily or 300,000,000,000 pounds in a year. Mr. Goode, in discussing the distribution and natural history statistics of the menhaden, attempts to make an estimate of the number of these fish devoured on the coast of New England in the summer months by bluefish and other species, and he comes to the conclusion that these may safely be given at 300,000,000,000,000.

Even this wonderful estimate of the destruction of fish life sinks into insignificance when we consider the destruction of fish by natural causes. Excessive changes of temperature, it is well known, destroy annually millions of fish. On the Keeling Island, only a few years ago, after a cyclone, the water boiled up in inky blackness, and continued thus for fourteen days; at the end of that time dead fish were thrown upon the shore in such vast numbers that it took three weeks to dig a trench and bury them in it. The extraordinary phenomena of the great destruction of fish in the Gulf of Mexico shows us of the populous condition of the sea. From causes, as yet undetermined, it frequently happens that fish are found dying or dead, so much so that the shores are covered with them for miles, and many millions of fish perish without apparent cause. Thousands of other instances might be given of the immense destruction of sea life, which gives up a clew as to the contents of this wonderful basin.

The time must come when nations will interest themselves to put a stop to the great destruction of fish life now going on. In the much greater proportion of the ocean to land, this reservoir of food is practically inexhaustible, and the time will come when nations will interest themselves in a cheap universal food which will contain all that is essential to contribute to the waste of the human organism and will be cheap and easily prepared, and I believe when this is done the ocean will furnish 75 per cent. of the ingredients of this universal food. I believe I may safely assert that the fish supplied to the New York market will amount to 300 tons daily, which nearly equals the total amount of the beef supply, and that the prices paid for this fish does not amount to one-eighth of that paid for beef.

It must be borne in mind that it has been abundantly shown that people who subsist principally on fish are the hardiest people in the world.

A glance at a "grand kitchen," and the complicated appurtenances necessary to the preparation of daily food, which comprises not only a grocery store, but an apothecary shop, before it is complete, with an officiating head cook, paid $10,000 per annum, will show at once that there is something radically wrong with our present system of living, and I believe firmly that some means will be devised to discover a food suitable to all classes and conditions, and that when this is done half of the worry and fret caused by the apprehension of want in the world will be done away with.

YIELD AND VALUE OF DOMINION FISHERIES.

The following table will show the yield and value of the fisheries in the Dominion of Canada, for the years 1888 and 1889:

Kinds of fish.	1888.		1889.	
	Quantity.	Value.	Quantity.	Value.
Cod ..... cwt..	1,050,847	$4,203,388.00	904,560	$3,618,240.00
Boneless cod ..... pounds..	3,000	120.00	.....	.....
Herring, pickled ..... barrels..	341,077	1,364,308.00	286,678	1,165,724.00
smoked ..... boxes..	1,497,890	373,272,50	2,685,170	666,342.25
frozen ..... number..	22,305,500	133,833.00	32,895,881	666,291.41
fresh ..... pounds..	9,653,308	482,821.40		
Lobsters, preserved in can, ... do ..	9,597,773	1,207,033.80	10,637,233	1,276,468.20
in shell, alive, etc, ... tons..	6,288	276,354.76	5,247	208,020.00
Salmon, pickled ..... barrels..	8,464	109,978.00	6,704	84,740.00
fresh ..... pounds..	4,640,660	680,432.00	4,267,173	634,734.20
preserved, in cans ..... do....	8,878,156	1,110,874.80	20,141,152	2,417,508.16
smoked ..... do....	30,576	6,115.20	24,714	4,943.00
Mackerel, preserved in cans ..... do....	63,563	7,883.01	196,212	23,544.88
fresh ..... do....	540,600	32,436.06	542,500	32,550.00
pickled ..... barrels..	62,756	941,340.00	62,237	874,302.00
Haddock ..... cwt..	237,183	948,732.00	125,662	532,948.00
Hake ..... do....	121,635	486,540.00	118,714	474,856.00
Pollock ..... do....	121,071	484,284.00	77,196	308,784.00
Trout ..... pounds..	4,499,860	449,381.00	5,125,493	512,549.30
pickled ..... barrels..	6,086	60,680.00	4,082	40,820.00
Whitefish, pickled ..... do ...	7,563	75,630.00	3,986½	39,865.00
fresh ..... pounds..	8,677,256	626,694.28	9,009,122	645,231.30
Smelt ..... do....	3,723,772	222,674.66	5,011,058	298,951.78
Sardines ..... hogsheads..	16,941½	104,428.00	23,804	71,412.00
Oysters ..... barrels..	56,234	163,902.00	63,049	189,897.00
Hake Sounds ..... pounds..	103,557	103,557.00	79,489½	79,489.50
Cod, Tongues, and Sounds ..... do ...	16,606	21,560.00	307,247	19,253.50
Alewives ..... barrels..	28,565	128,541.50	37,470	166,441.00
Shad ..... pounds..	514,251	30,855.06	170,330	10,219.80
pickled ..... barrels..	3,950	39,500.00	4,868	48,145.00
Eels, pickled ..... do....	22,594	206,570.00	7,100	71,000.00
Eels ..... pounds..	1,590,145	114,778.70	1,378,473	82,708.38
Halibut ..... do....	1,368,808	125,405.80	1,903,115	160,059.00
Sturgeon ..... do....	1,892,518	111,116.28	1,773,685	102,127.72
Maskinongé ..... do....	786,981	47,218.86	755,203	45,312.18
Bass ..... do....	1,034,846	62,090 76	1,153,487	55,725.16
Pickerel ..... do....	3,484,416	194,458.96	3,264,501	182,381.92
Pike ..... do....	1,500,878	55,333.90	1,743,444	69,287.79
Wininish ..... do....	100,000	6,000.00	100,000	6,000.00
Tom Cod or Frost Fish ..... do....	1,299.895	51,995.80	.....	26,580.00
Flounders ..... do ...	83,650	8,365.00	84,300	8,430.05
Squid ..... barrels..	12,446	49,784.00	11,649	46,596.00
Oolachans, pickled ..... do ...	282	2,820.00	380	3,800.00
fresh ..... pounds..	20,200	2,020.00	82,500	2,255.00
smoked ..... do....	200	40.00	6,700	1,340 00
Clams	.....	3,000.00	.....	19,950.00
Fur Seal skins ..... number..	27,983	279,830.00	33,570	335,700.00
Hair Seal skins ..... do....	32,562	31,687.00	33,333	31,583.00
Sea Otter skins ..... do....	100	7,500.00	115	11,500.00
Porpoise skins ..... do....	455	1,847.00	777	3,151.00
Fish Oils ..... gallons..	960,541	390,655.90	984,181	407,815.50
Coarse and mixed fish ..... barrels..	40,202	208,851.63	27,275	147,852.48
Fish used as bait ..... do...	159,391	231,586.50	217,609	261,347.00
Fish used as manure ..... do....	126,449	63,224.50	60,563	30,281.00
Guano ..... tons..	1,158	28,950.00	984	24,600.00
Crabs and Prawns in British Columbia	.....	7,500.00	.....	10,750.00
Fish, assorted, in British Columbia	.....	.....	942,325	52,486.25
Fish, assorted, for Halifax market	.....	4,550.00	.....	40,500.00
Fish, assorted, for home consumption, not included above	.....	203,235.00	.....	205,655.00
Total	.....	17,418,510.76	.....	17,655.00

THE SALMON.

From this table it is apparent that the salmon canning industry is coming prominently to the fore in Canada. The Canadian authorities have exerted themselves to aid in the development of this industry with marked result. In exact proportion to the increase in canned salmon in the Dominion this industry has declined in the United States.

It is to be hoped that the portion of this report wherein is mentioned the pollution of streams, and its effect upon the fishy tribes may be heeded at home and the recommendations therein adopted. This is more particularly necessary respecting salmon, and it is a well known characteristic of this fish that it will not live in a stream in which saw-dust is to be found, and any kind of filth is equally repugnant to it. A law has recently passed the Canadian Parliament prohibiting mill-owners from allowing saw-dust from their mills to pollute the streams and at once a change was perceptible. Streams that were once full of salmon were abandoned by them when saw-dust was dumped into them, and once this was discontinued the salmon were again found in the stream. Every protection is necessary for this fish. It is the king of the finny tribe. It is the most beautiful, graceful, and active fish that inhabits the waters, and as for sport for the angler nothing can so delight his heart as a contest with a salmon. An angler who has ever caught a salmon never desires to fish for other fish; it spoils all other fishing sport. An inexperienced fisherman could no more land a salmon than could a man without training navigate a ship. As the salmon is the king of fish in the water, so it is for the table, and it is incomparably the finest fish in every possible respect.

The salmon at the time of the first settlement of the maritime provinces was found frequenting almost every river and stream having an outlet into the sea. Being of a migratory nature they ascended the rivers and streams for breeding purposes. So plentiful were they in many of the streams prior to the lumber industry taking such root that old citizens love to edify the younger generations of how the salmon use to jump out of the water to catch the bait before it had touched the water and where now a salmon can not be found.

Mill-dams were found also to be distasteful to the salmon, and the Canadian authorities have passed a law regulating mill-dams so as to admit the easy ascent of salmon to the spawning ground they desire to find.

These points are well known, and no one with any knowledge of the fish will deny them; and these laws are the surest, indeed the only mode of effecting permanency of the fishing industry, as they guaranty the natural condition of the spawning beds and free access of the fish thereto, and their freedom from molestation while engaged in reproducing their species; none of which conditions can exist if the waters are allowed to be polluted.

It is a pity to hear of a decline in this industry in Oregon and on our Pacific coast. This decline will be permanent, and it is not hard to predict in a short time an utter ruin, if protective measures such as I have just mentioned are not adopted by our people. I would urge the adoption of such measures by the legislatures of our Pacific States and their rigid enforcement at once.

With the exception of the increase in the salmon industry there has been a falling off in almost every branch of the fishing industry.

THE HERRING.

Of all commercial fishes the Herring has been the most important to Canada, and this province (Nova Scotia), the principal seat of this industry. There has been a marked decline in the herring catch, and this has taken place in spite of the enforcement of certain regulations that were adopted that was thought to be necessary to the development of the herring catch. These regulations were never, in my opinion, necessary, and I have been told that they were aimed more at our fishermen than to any genuine desire to better the herring catch, and this I am disposed to believe. It has been urged by Canadians who fill positions under the present Government that purse-seine fishing is ruinous to the shore fisheries, as it draws a wall around the inshore fisheries. There has been a great clamor raised against purse-seines. As our New England fishermen were the inventors of and only ones who used these seines, this is only an excuse for that expression of dislike for "the yankee," which all paid Government employés feel and never allow an opportunity pass without expressing.

Perhaps one out of every five hundred herring in the sea are taken by man. And were the very best facilities that could possibly be adopted applied for taking fish, and were the catch doubled many times, there could be no perceptible diminution in so populous a tribe. The fallacy of such a statement as that the American purse-seine is the cause of the decline of the Nova Scotia herring catch is abundantly shown by the report of the Royal Commission in England. This commission was formed in consequence of the great outcry of the wasteful destruction of spawn and young herring by beam-trawling and sea-nets, a cry identical with that of the Canadian fishermen to-day. This commission was notonly formed to examine this question, but also to inquire into the general condition of the English fisheries, the special aim being the state of the supply of fish, and the question whether the method of fishing in use involved a wasteful destruction of fish or spawn, and whether the existing fishery restrictions operated injuriously on the fisheries. On these points the commission, after taking evidence all around the British Islands, were enabled to give a very decided opinion. They decided that instead of a decline the supply of fish had generally largely increased, and that the method of fishing involved no waste of young fish that could be prevented without interfering with the general fisheries; that spawn was not destroyed by the nets, and that all fishery restrictions should be removed except such as were desirable for protecting and keeping order among the fishermen.

From the report of this commission emanated the act known as the "Sea fishing act of 1868," which did away with all fishing restrictions. This commission also put an end to other extravagant claims put forward by Canadian fishermen. They claim that the herring, mackerel, and cod have certain places along the shore at which they deposit their spawn, and therefore that reserves or places set apart for this purpose should be provided for. This is only a trick to exclude our fishermen and shut them off more and more from their rights to take fish adjacent to and in the Canadian waters, and in my opinion our Government should not for a moment allow any other restrictions upon our fishermen.

This claim that herrings, mackerel, cod, etc., have certain grounds which they frequent at certain seasons to deposit their ova has been shown to be a fallacy by Professors Huxley and Allman in their report in 1867, and this has been confirmed by the Swedish professor, G. O. Stars, of the University of Christiania, by Mann of Gothenberg, Dr. Bain, and others. Ova from the fish mentioned have been found floating at the surface of the sea, and in all cases were found alive, and some in an advanced state of development, and their ova can not, therefore, be liable to the slightest injury by any method of fishing which is carried on upon or near the ground. The specific gravity of herring spawn causes it to sink to the bottom sooner or later in its phases of development. The aggregation of this ova into masses of various sizes, and the glutinous substances in which the ova are embedded, by which they are enabled to adhere firmly to anything with which they may come in contact, points to their remaining in a fixed position during the process of development.

The spawn of the herring has been shown, from the above characteristics, to catch to stones or any projecting substance and adhere thereto during propagation. Now, it is well known that purse and other seines can not be used in rough bottoms, hence it is clear that no protection of the ova of the herring, even where it does adhere to the bottom, which is exceptional, is necessary. Professor Allman, in his report in 1862, says:

> With a view of determining whether development would proceed in confinement I placed some of this spawn in a glass jar with sea-water, exposing it in a window, looking east. The several stages of development were regularly passed through, and on the 15th March the embryo was fully formed, energetic movements were performed by it in the ovum, and it seemed ready to escape into the surrounding water. On the 16th some of the embryo had actually escaped, and were now about four-tenths of an inch in length.

This I quote merely to show the vitality of the spawn of the herring, and ichthyologists have shown that the ova will pass through the regular stages of development under the most unfavorable conditions, and have been known to live even after exposure to the sun, until they had become quite dry, when again placed in water vitality was renewed.

The claim, then, of Canadians that it is injurious to the fisheries of this section for our fishermen to use purse-seines, and the recommendations of the Canadian authorities to enact laws prohibiting their use, and the setting apart of certain localities which were not to be fished, is only a pretext.

I have abstained from quoting from the high authority to which I have referred above to show that the ova of the different fish tribe were not injured by the purse-seine, for the sake of brevity. The reports referred to above are accessible to any one, and I am perfectly sure of my accuracy in refuting such arguments. Apart from all this the spawn of the herring has passed through every stage of development, and the fish have fully matured long before our fishermen commence their fishing operations. This of itself will show how utterly false such claims are.

It is a well-established fact that the herring suddenly disappear from the coast of Norway, Sweden, Scotland, and from Europe generally. These fluctuations are not so marked or frequent on the American coast as in the countries above, still some years are marked on our coast by a very large increase over other years, but the herring never entirely disappears here as in Europe. In Europe after a lapse of seven and sometimes nine years these fish re-appear in the waters in increased numbers.

Before leaving this part of the subject I feel it incumbent on me to revert again to the fixed and seemingly unalterable opinion that purse-seines depopulate the waters of herring. I do this so as to convince the Department that I am correct in asserting to the contrary. I do so for the further reason that I feel confident that this old cry will be used as an excuse for the perpetration of further wrongs on our fishermen. When our fishermen have paid the exorbitant demands of Canada for a "license" which they have to pay and run all the risks of a paying catch which they have to run, it should in all conscience be enough without further "fleecing of the Yankee."

But to return, the fishermen in Scotland in 1860, and particularly those of Loch Fyne, complained bitterly of the use of beam-trawling, a term equivalent to purse-seining for catching herring. These fishermen complained that this mode of seining intercepted the fish at the entrance of the loch and broke up the shoals so that the herring did not find their way to the upper water, where it was alleged there always used to be plenty of fish at the proper seasons. There were also complaints that fish of all sizes were caught by the trawl, those which were too small to be stopped by the drift nets, and those too large to be meshed in them, "the mother fish." The trawlers, too, made such enormous hauls that only a portion of the catch could be saved, and besides other sins (and the thing that made the shoe pinch) they claimed that the lowered price of the herring in the home market by the large supply they could with little expenditure of time and trouble sometimes throw into the market and so prevent the driftmen from obtaining the better prices they had commonly got from their smaller catches.

The Government yielded to this clamor, and an act was passed which put an end to trawling for herring on the coast of Scotland. These acts it was soon seen caused great trouble, so much so that a royal commission was appointed to inquire into the subject. The conclusion arrived at by this commission was (as I have stated before) adverse to the opponents of trawling, and were decidedly to the effect that the herring fishery in Loch Fyne had suffered no diminution by that method of fishing; on the contrary, it had really been progressive. In spite of all proof—and proof enough was given—the fishermen clung to the opinion they had formerly expressed. Two Scotch gentlemen in whom the fishermen had the utmost confidence went quietly to work on their own investigation. The results were that this last commission confirmed everything uttered by the previous investigations. Even this did not satisfy the fishermen, and in 1877 a fourth commission was appointed. Loch Fyne was the principal seat of the agitation, and this was the principal place investigated. In the mean time the trawling had been going actively on, and there had been an increase from 6,934 barrels in 1874 to 15,097 in 1875, and to 37,471 in 1876, with a further increase in 1877, and in the face of all this these opinions were persisted in. But the last commission decided as the former ones had done, that trawling had no influence on reducing the number of herring to any perceptible degree.

How Canadian officials can reiterate such nonsense and recommend the restrictions which have already been put in force in Scotland, and found and proven over and over again to be utterly impractical, unnecessary, and useless, is a surprise to me.

The catch of herrings in Canada per annum will aggregate about 1,000,000 barrels. This might be largely increased, but the life of the fishermen is so easy that they care very little about exertion, knowing that in all events they will not suffer from hunger. The catch in Norway and Sweden is about 2,000,000 barrels per annum.

The boats employed in the fisheries in Canada, exclusive of Newfoundland, are 20,241, manned by 40,023 persons, and 1,397 vessels, manned by 9,097 persons. Newfoundland employed about 18,611 boats, the number of persons employed being 45,854; the number of vessels being 1,197, with an aggreate of 61,551 tons, and manned by 8,394 fishermen. The above figures were a surprise to me, as it demonstrates the fact that the Newfoundland fisheries are of about equal importance to those of Canada entire, and it is a fact too well known to require mention that the catch on the Newfoundland coast is not half of what it might be. I can make the broad assertion that the fisheries of the Newfoundland coast are worth very much more to us than those of Canada entire, and the people are very much more in touch with us than are the Canadians.

The French vessels and boats engaged in fishing on the Newfoundland coast and adjacent islands number about 1,000; about 70 per cent. of these are open boats; the number of men employed are about 6,400. The produce of this is about 10,000,000 francs per annum.

LOBSTER FISHERIES.

With the falling in the catch of other fish, lobsters have suffered in an equal proportion with the decline of herring, mackerel, and cod. The greater number of those engaged in this industry, that is to say, who have factories, are American citizens. Seventy-five per cent., I should say, of the capital invested in the lobster fisheries comes from the United States, but the employés of these factories are Canadians.

Now, anything I may say about Canadian officials, and especially the courteous and urbane officer to whose report I am about to allude, will be done with deep regret. So far as I have observed, the officers of the "Dominion cruisers" are refined, courteous, and competent gentlemen, but extraordinary power is conferred on them, and when it is remembered that the present government is known throughout the Dominion for its excessive dislike of "the Yankee," and when we multiply this with the knowledge that men who have the lion's strength are very apt to use it, lion fashion, we can see at once how our citizens who have invested money in erecting factories here are apt to suffer at the hands of Canadian officials.

Capt. Andrew R. Gordon, commanding Fisheries Protection Service, in his report to the Dominion Government, dated December 17, 1889, writes as follows:

> The present regulations are apart from the question of closed time that lobsters under 9¼ inches in length, or carrying exude ova, may not be taken. Speaking generally, in the Gulf of St. Lawrence the closed season is loyally observed and all the large canneries in eastern Nova Scotia were closed at the proper time, though a certain amount of desultory fishing was carried on by individual fishermen during the months of September and October; and it should, I think, be pointed out that all through the months of July, August, and September it was quite possible, at any time, to buy a freshly caught and boiled lobster in the Halifax market, though such parties as either bought or sold them were clearly liable to a penalty under the Fisheries Act.
>
> The present regulations in regard to size, limit, and the destruction of females carrying exude ova, are intended as protective measures, and are without doubt protective enactments; but the question arises, how far the enforcement of these enactments is possible with the existing means at the command of the Department, and the still wider question of whether the enforcement of the regulation is compatible with the existence of the industry. I consider the fact undeniable, that taking the Gulf of St. Lawrence district, if the above quoted regulations were strictly enforced, not one single packing factory could run for one single day; and if the packers whose interest and desire it undoubtedly is to maintain the fishery, were to attempt to enforce the law, the fishermen would directly reply that they could not make a living at fishing with adherence to these regulations, and therefore could not fish for the packers.
>
> The rigid enforcement of the existing regulations is therefore tantamount to the closure of the factories, and would in practice have the effect of diverting the business from the hands of the responsible citizens who are now engaged in it to those of the fishermen of small means, who would get their supplies of cans from the merchants, and by boiling the lobsters in the houses and barns render it almost impossible to exercise any control whatever over them; and if these men were caught breaking the law the whole property which could be seized would be insufficient to pay the fine.

As the factories above alluded to by Captain Gordon have not closed but have continued, to the present *en activité* it is very clear that Captain Gordon has power to close, that is to enforce the Canadian laws or not at his pleasure.

A week has not elapsed before an American, "a Yankee," in Canadian phraseology, representing several canning establishments and a capital of many thousands of dollars, was summoned before Captain Gordon in the very shadow of this consulate and had to pay a fine of $300, because five lobsters (or thereabouts), were found in his factory under 9½ inches.

Hardly a day elapses but that I see published accounts in the newspapers of Halifax and other places of just such fines, and in every instance that has come under my observation these fines have been imposed on Americans.

The Halifax Herald of yesterday (July 25) is before me, and as I paused in writing, this item caught my eye:

> Thos. F. Hogan, a well-known dory fisherman in Massachusetts, was find $625 in Salem recently for having short lobsters in his possession—$5 a lobster.

I do not assert that no natives have suffered at the hands of the same power that has inflicted it on "the Yankee," but I can say in all candor that I have never yet seen an announcement in the newspapers of a Canadian being fined, nor have such fines if imposed reached me by rumor, nor has it ever fallen my under observation.

Be that as it may, and granting that Dominion cruisers do fine Canadians for infringing the law as they do "the Yankee," that does not destroy the fact that extraordinary power is given to Dominion employés, and that American citizens suffer by it, a law that even the power most active in executing condemns in terms such as I have quoted above when enforced against Americans in this manner must be meant, as Captain Gordon says above, for the purpose of "the closure of the factories and the driving the business from the hands of responsible citizens who are now engaged in it to others."

The parties referred to are Canadians who would carry on the fishing in their barns. Now it is to be inferred from that which Captain Gordon has written above and from his procedure in imposing these enormous fines on Americans that he intends to divert the lobster industry from its present possessions into other hands. The truth of this matter is the entire restrictive system is wrong to the core. It is unjust on our citizens to be subjected to such arbitrary power, and this cries out for correction.

The very day that Captain Gordon summoned the American before him and imposed a fine of $300 for violating the fishery law, I saw a native on the street peddling lobsters of all sizes and conditions, and no doubt but that Captain Gordon himself was approached and solicited to buy. This doubtless might have also been seen in any Canadian city or town, and that, too, after the time in which fishing for lobsters had expired by two weeks, and long after all Americans had closed up their factories.

HALIFAX AS A FISH-MARKET.

The port of Halifax is hardly surpassed for its numerous advantages by any port in the world. Easily accessible to the fishing-grounds, easy to enter, deep, spacious, and beautiful, it is naturally the fish-market for the maritime provinces, and the distributing point, also, for the wants of the fisheries. That Halifax to-day is only an overgrown village, with a struggling and paltry population of 35,000, is a wonder when we consider how rapidly Boston and other New England cities of the same age have outstripped her in population and wealth under less favorable conditions. Special products and industries have built up our cities, as iron has Pittsburgh, as cotton has New Orleans, tobacco has Richmond, etc. Here is a place possessed in marvelous luxuriance with all the advantages and requisites for being a great city, and yet, compared with Boston, Portland, San Francisco, New Orleans, and other American cities, it is a wilderness. Why is this?

The answer is easy.

The United States is the natural market of the maritime provinces; indeed, of Canada entire. As long as we are two nations our fiscal policies are sure to clash to the detriment of the people of this section. As long as we are two nations so long will there be unsettled questions between us that operate not against our interest, but against the interest of Canada, and keep our capital, which would naturally find a field of investment here, out of the country and keep back development of the boundless resources of this section.

If the fisheries of Canada were operated as they should be—and would be if the people had a free and untrammeled market in the United States—Halifax would in fifty years surpass Boston in population and thrift as much as Boston now surpasses Halifax.

I beg to inclose with the present report a report of the operations of the hatchery at Flodevigen, report on the most approved modes of catching, curing, and packing herring, together with numerous statistical tables, all of which it is my sincere hope may be of value and service to our fisheries.

GEO. C. TANNER,
Consul.

UNITED STATES CONSULATE,
Pictou, *July* 24, 1890.

MEXICAN ORANGES FOR THE UNITED STATES.

REPORT BY CONSUL SMITH, OF NOGALES.

I have the honor to inclose herewith a report of oranges exported at this place during the year 1889 to various points in the United States and to state that these shipments were made between January 2 and April 6, and between November 4 and December 31, or all within about five months of the year. The prices ranged from $1.50 to $2 per box, in Mexican silver, for January and March, and $2 per box for November and December, or, to to be more specific, there were shipped 2,012 boxes at $1.50 and 11,178 at $2.

Three hundred boxes of oranges at $2 per box in Mexican silver would cost laid down at Chicago about as follows: Cost in Sonora, $600, Mexican silver ($454.80 in United States currency); freight from Guaymas, Sonora, to Chicago, Ill., $262.50, United States currency, and duties and consular fees here, $77.50, or a total of $794.80 at destination, making cost of an orange at Chicago about 1.83 cents. This cost will also apply to St. Paul, San Francisco, and Los Angeles, to which points freight rates from Guaymas are the same.

The freight rates from Guaymas to Kansas City, Omaha, Albuquerque, St. Jo, Denver, and Topeka are 12½ cents per 100 pounds less, or $236.25 per car of 300 boxes, or about 1.77 cents each orange.

It is generally accepted that the oranges raised in the vicinity of Hermosillo are much better in flavor than those raised in the vicinity of Guaymas, and the theory advanced by some is that the close proximity to salt water helps to injure the flavor; by some that oranges raised on uplands are better than those raised on lowlands; and by others that surface irrigation is much better for oranges than any other system; and I am of opinion that the latter theory is nearest the correct one. Oranges can have too much water, which is doubtless the case at Guaymas.

About 73 per cent. of the oranges shipped through this port come from Hermosillo, but the shipping bills are all made from Guaymas for the reason that the through rate from that place is less than from Hermosillo, 90 miles this side.

Report of oranges exported into the United States from the Republic of Mexico during the year 1889, as shown by the records of the United States consulate at Nogales, Sonora, Mexico.

[Duty per box, 25 cents.]

Shipped to—	Freight per 100 pounds, United States currency.	Oranges.			First cost.	
		Barrels.	Boxes.	Bulk.	Mexican currency.	American currency.
Chicago, Ill	$1.25		2,673		$4,990.00	$3,787.41
Kansas City, Mo	1.12½		4,636		8,622.00	6,544.10
Omaha, Nebr	1.12½		256		450.00	341.55
Albuquerque, N. Mex	1.12½	1	371		788.00	598.09
Tucson, Ariz		5	100	5,000	271.50	206.07
Benson, Ariz			139		278.00	211.00
St. Paul, Minn	1.25		1,332		2,664.00	2,021.98
St. Jo, Mo	1.12½		708		1,416.00	1,074.74
Denver, Colo	1.12½		1,603		3,306.00	2,509.25
Topeka, Kans	1.12½			50,000	400.00	303.60
San Francisco, Cal	1.25	15	1,036	40,000	2,467.00	1,872.45
Los Angeles, Cal	1.25		836		672.00	510.05
Total shipped in 1889		21	13,190	95,000	26,324.50	19,980.29
Total shipped in 1888		110	4,030	120,000	5,428.40	4,120.16

NOTE.—Weight of a box of oranges, 70 pounds gross; measurement, 2¼ cubic feet. Number of oranges in a box, about one hundred and forty-five. A car-load is 20,000 pounds, and any weight in excess is charged for at car-load rates. Mexican silver, .759 (form 148).

DELOS H. SMITH,
Consul.

UNITED STATES CONSULATE,
Nogales, Mexico, 1890.

THE ISLAND OF TOBAGO.

REPORT BY CONSUL SAWYER, OF TRINIDAD.

Tobago, a small romantic island of the Caribbean, is situated 20 miles northeast of Trinidad, in latitude 11° 2–9′ north and longitude 60° 12–43′ west.

Trinidad and Tobago were discovered by Columbus on his third voyage. Fowley, who wrote in the last century, states that the great navigator gave this island the appellation of Tobago, from a notion that it resembled a tubical instrument so called by the Indians with which they inhaled the fumes of tobacco. The formation of the island and its physical aspect are picturesque, with conical hills which descend from ridges nearly 2,000 feet high and 18 miles in length. The early inhabitants were Caribs, but Tobago has since been depopulated by sanguinary conflicts, and, like Trinidad, she has none of the original population.

The British flag was first set in Tobago in 1608, soon after Raleigh's unfortunate expedition to Trinidad and the Orinoco in 1595, but although James I laid claim to the island, the English were soon driven off by the Caribs. In 1632 the Dutch formed a settlement, but were driven off by the Spaniards of Trinidad. In 1662 Tobago was granted to the French, and in 1684 it was declared a neutral island by the treaty of Aix-la-Chapelle. In after years the treaty was broken, and the English, French, Dutch, or Spanish severally held control of the island, according to the fate of war. During the struggle for the possession of the West Indies later on Tobago was frequently the scene of military and naval battles; her harbors (Scarborough and Plymouth), places of rendezvous for squadrons, of ships of war, and transports of soldiers with Rodney, de Grasse, Binks, D'Eatree, and others in command. But Rodney's great victory off Dominica in 1782, however, established England's supremacy in the Caribbean, although it was not until 1803 that the French surrendered Tobago, which was eventually ceded in perpetuity to England by the treaty of Paris in 1814.

It has since been a colony, with its own administrator, legislative council, customs, police, etc., under the governor of the Windward Islands until 1889.

POPULATION.

Sugar and cotton were early cultivated in Tobago, and as negro slavery was considered indispensable in the cultivation of these staples, until Wilberforce struck it down in 1834, the planters of Tobago obtained their slaves from Africa or the adjacent islands. Although this hot, humid climate, so near the equator, is unhealthy and forbidding to the Caucasian race, it is healthy to the negro, it being his natural element, where he thrives and multiplies. After more than two hundred years since the whites (either French, Dutch, or English) and the blacks had settled in Tobago the population, like that of the other islands, is now nearly all negroes, but few Caucasians remaining.

The population of Tobago in 1881 was as follows: Europeans, 109; Africans, 15,172; Mulattos, 2,870. Total, 18,151. The population of Trinidad in 1881 was 153,128.

LAND.

There are 73,313 acres of land on the island, about 10,000 of which are under cultivation. There are 2,500 acres of Crown lands, the remainder of the island being covered with forests. Prices of land near the villages are from £15 ($75) to £20 ($100) per acre, and in other places as low as £1 ($5) per acre, the soil being very fertile.

THE CRUSOE CAVE.

The Crusoe cave is situated on the west coast, 10 miles from Scarborough, and it is said that this cave was the abode of that celebrated mythical shipwrecked mariner and his Indian man Friday. This is a pure fiction and never had any existence save in the imagination of the author, who never saw Tobago. The idea was borrowed from Alexander Selkirk, and many still confound Tobago with Juan Fernandez, although that island is in the Pacific. But in the early part of the last century Tobago appeared a long way from England. New discoveries and South Sea wonders were retold, reprinted, and repictured by the drama until such imaginations culminated in the bursting of the great South Sea bubble.

ANNEXATION OF TRINIDAD AND TOBAGO.

The annexation came into effect January 1, 1889, the appellation of the united colony being "Trinidad and Tobago." Local self-government is preserved to each island as much as it can be in a Crown colony. It is free trade between the islands as between the American States, but the customs and revenues of each island are separate. Each city or town has its own local government, but all other powers are with the governor, legislative council, and judges, at the capitol in Port of Spain. The highest office in Tobago is a commissioner, who is appointed by the governor, and Tobago has two members of the legislative council, one of them being the commissioner. The judges have to perform judicial duties in both islands.

LABOR.

Labor in Tobago is very low, in most cases a common laborer receiving only 16 cents per day. This is owing to that inexorable law of supply and demand, where there is a large supply of laborers and but few capitalists.

CANE CULTIVATION.

The sugar estates of Tobago are all cultivated more or less on the Metairie system, which has been the custom since 1845.

The labor system was thrown into confusion throughout the West Indies by the emancipation of the slaves, and after slavery the Metairie system was adopted in Tobago, which is this:

The planter allows the metayer a certain portion of land rent free, on which he is bound to plant canes and to keep them in proper cultivation. A piece of land is also generally allowed him to plant his ground provisions. The canes grown by the metayer are cut by him at a time when he is required to do so by the manager of the estate, and are carried to the mill in carts supplied by the estate, and are there ground at the cost of the metayer.

The sugar is then divided, one-half going to the estate and the other to the metayer. The latter also receives a certain proportion of the molasses.

This system has its faults, and certainly it is not conducive to high class cultivation; but it is convenient in Tobago, where there is but little capital, and where they have no vacuum pans, and but few of the late improvements on the estates.

ESTATES.

What is called a farm in New England is called a plantation in the Southern States, and an estate in the Indies. A few acres of land growing sugar-canes is called a sugar estate, or some land having a number (large or small) of cocoa trees is a cocoa estate. In 1884 Tobago had fifty-six estates, so called; twenty-four of these are worked by steam, and the others by water, wind, or cattle.

In consequence of the sugar depression many of the estates have been abandoned, and those remaining are in a bad condition for want of capital to keep them in repair, which has intensified the quarrels between the planter and metayer. The judicial reform in Trinidad during 1888 has now placed Tobago in a state of turmoil, as by the revival of *in forma pauperis* in the colony many metayers have brought suits against the planters before the courts of Tobago. But there is no rioting or bloodshed. There is much talk and denunciation pro and con and some criticism by the press; but the unpleasant differences are being adjusted in a civilized and constitutional manner.

SUBSIDIZED STEAM SERVICE.

A contract has been made between this Government and Messrs. Turnbull, Stewart & Co., of Port of Spain, whereby the latter agree, for the consideration of £5,000 ($25,000) annual subsidy to run a semi-monthly line of passenger and mail steamers between New York and Port of Spain, and also to furnish small steamers to ply between Trinidad and Tobago and around the islands.

The first steamer sailed from Trinidad for New York on April 1, and the line has continued to make successful voyages of eight and nine days' passage during the year.

In addition to the usual cargoes of sugar and cocoa these ships have carried much fruit, especially of oranges and limes, that are well received in the New York markets.

The following table shows the exports of produce from Tobago, commencing 1794 and ending 1809, and for 1827 to 1862.

Exports from Tobago by articles.

1794 to 1809.

Years.	Sugar.	Molasses.	Rum.	Shrub.	Cotton.	Years.	Sugar.	Molasses.	Rum.	Shrub.	Cotton.
	Hogsheads.	*Puncheons.*	*Puncheons.*	*Puncheons.*	*Pounds*		*Hogsheads.*	*Puncheons.*	*Puncheons.*	*Puncheons.*	*Pounds.*
1794	8,317	91	4,998	....	454,500	1802	13,300	585	7,864	80	24,150
1795	6,071	301	4,368	1	327,150	1803	8,121	95	5,435	15	26,400
1796	7,446	42	5,693	1	401,100	1804	11,044	381	6,390	14	19,200
1797	7,658	4	4,893	....	73,650	1805	13,215	920	8,621	15	35,400
1798	9,792	....	7,415	1	25,950	1806	12,580	655	8,192	29	29,250
1799	13,677	151	7,669	4	7,950	1807	10,440	686	9,006	24	28,050
1800	10,276	1,383	6,429	5	9,000	1808	10,775	206	7,934	22	20,400
1801	11,411	662	7,686	24	31,000	1809	11,151	73	7,663	19	34,350

Exports from Tobago by articles—Continued.

1827 to 1862.

Years.	Sugar.	Rum.	Molasses.	Years.	Sugar.	Rum.	Molasses.
	Cwts.	*Gallons.*	*Cwts.*		*Cwts.*	*Gallons.*	*Cwts.*
1827	86, 054	362, 440	1, 543	1845	63, 037	157, 514	7, 339
1828	137, 151	504, 728	8, 746	1846	45, 433	111, 512	4, 578
1829	119, 436	493, 324	2, 289	1847	72, 293	263, 904	5, 419
1830	107, 946	400, 440	787	1848	53, 345	139, 978	2, 079
1831	133, 825	492, 132	1, 868	1849	56, 463	120, 392	5, 775
1832	126, 007	337, 916	17. 493	1850	47, 730	114, 648	3, 255
1833	104, 965	274, 940	16, 758	1851	56, 514	134, 604	1, 491
1834	88, 722	272, 284	12, 400	1852	66, 879	149, 020	1, 438
1835	85, 093	311, 100	5, 764	1853	57, 327	139, 296	1, 522
1836	122, 464	375, 876	13, 702	1854	49, 844	157, 084	787
1837	98, 010	325, 048	10, 048	1855	41, 788	117, 140	288
1838	76, 820	244, 424	6, 783	1856	47, 147	176, 116	2, 299
1839	83, 565	266, 364	5, 691	1857	48, 096	104, 796	2, 257
1840	62, 208	174, 736	4, 735	1858	67, 147	143, 428	1, 648
1841	40, 932	102, 656	2, 688	1859	69, 330	147, 014	2. 456
1842	49, 408	134, 960	4, 840	1860	59, 052	109, 047	1, 207
1843	52, 845	110, 200	10, 200	1861	59, 013	100, 608	1, 123
1844	58, 001	119, 176	14, 290	1862	83, 168	110, 036	4, 096

Exports of Tobago by countries.

Year.	To United Kingdom.	To Colonies.	Elsewhere.	Total.
1879	£64, 208	£6, 047	£200	£70, 445
1880	71, 459	5, 871	285	77, 728
1881	76, 252	6, 934	396	83, 582
1882	42, 013	5, 782	450	48, 245
1883	37, 098	5, 173	5, 774	48, 603
1884	26, 081	3, 218	12, 320	41, 416
1885	26, 414	6, 201	5, 822	38, 379
1886	8, 553	9, 791	547	18, 891
1887	21, 547	8, 433	2, 927	32, 907
1888	27, 809	7, 451	3, 640	38, 900
Total	401, 434 ($1, 926, 883. 20)	64, 901 ($311, 524. 80)	32, 361 ($155, 332. 80)	499, 106 ($2,395,708.80)

The following is a statement of the exports from Tobago for the years 1887 and 1888, and for which we are indebted to his honor the commissioner:

Exports of Tobago by articles.

	1887.	1888.	Values, 1888. £	s.	d.
Cattle .... head..	350	327	1, 962	0	0
Cocoa .... bags..	113	147	551	5	0
Cocoa-nuts	654, 627	669, 341	2, 098	0	9
Fowls .... dozen..	769	666	499	10	9
Goats	1, 961	1, 739	869	10	9
Hides	154	83	16	12	9
Horses	205	91	910	12	9
Old metal	....	....	300	12	9
Mules	6	8	120	12	9
Molasses .... puncheons..	*851	530	1, 325	12	9
Pigs	1, 235	928	696	12	9
Rum .... puncheons..	144	155	930	12	9
Sheep	209	204	153	12	9
Shell .... cases..	1	3	3	12	9
Turtles	22	39	23	8	9
Wood fuel .... cords..	375	348	348	0	0
Plantains .... bunches..	8, 168	3, 140	78	10	0
Sugar .... hogsheads..	2, 870¼	2, 493⅛	24, 936	5	0
Total	....	....	85, 820	0	9

* And 10 barrels.

Imports into Tobago by countries.

Years.	From United Kingdom.	From Colonies.	Elsewhere.	Total.
1879	£11,090	£26,257	£12	£37,359
1880	6,529	38,462	147	45,138
1881	35,051	26,205	325	59,581
1882	24,376	22,531	20	46,927
1883	25,029	21,631	333	47,003
1884	12,946	20,689	43	33,658
1885	16,326	14,169	263	30,758
1886	11,655	8,827	17	20,499
1887	13,669	9,369	78	23,117
1888	15,752	11,485	1,610	28,847
Total	172,423 ($827,630.40)	199,625 ($957,200)	2,848 ($13,670.40)	372,887 ($1,789,857.60)

Revenue and expenditures of Tobago.

Year.	Revenue.	Expenditure.	Year.	Revenue.	Expenditure.
1879	£11,501	£11,726	1885	£10,825	£12,031
1880	14,003	13,514	1886	8,831	9,529
1881	16,830	14,844	1887	9,386	6,904
1882	13,661	13,748	1888	10,489	8,155
1883	14,175	14,223	1889	8,600	9,863
1884	11,370	13,481			

Shipping at Tobago, entered and cleared.

Year.	Carried in British vessels.	Total carried.	Year.	Carried in British vessels.	Total carried.
1879	£10,942	£11,152	1886	£86,763	£87,049
1880	14,504	14,504	1887	88,047	88,704
1881	14,253	15,881	1888	111,390	111,892
1882	48,786	50,514			
1883	97,680	98,976	Total	679,834 ($3,263,203.20)	688,285 ($3,303,768)
1884	106,734	107,570			
1885	100,735	102,043			

Market rates at Scarborough, Tobago, 1889.

Horned cattle		$48.99	Rice:		
Horses		120.00	White	per bag of 160 pounds	$6.00
Sheep		6.00	Yellow	do	5.50
Goats		2.40	Retail (white)	per pound	.02¼
Swine		7.20	Coffee	do	.20
Beef	per pound	.14	Tea	do	.84
American family beef	do	.10	Muscovado sugar	do	.06
Mutton	do	.20	Common sugar	do	.03
Pork	do	.16	Refined sugar	do	.14
Venison	do	.16	Salt	per bushel	.40
Fowls	do	.12	Beer	per dozen	2.40
Fish	do	.08	Leaf tobacco	per pound	.48
Milk	per quart	.06	Brandy	per bottle	1.32
Fresh and salt butter	per pound	.36	Old rum	do	.60
Cheese	do	.32	Common rum	do	.40
Flour	per barrel	7.50	Kerosene oil		.10
Bread	per pound	.06	Cocoanut oil		.16

THE PRINCIPAL MERCHANTS.

The following is a list of the principal merchants and shop-keepers in Scarborough: John McCall & Co., Edward Keens & Co., George Agard & Co., Henderson & Co., S. B. Isaacs & Co., Thomas Blakely, jr., James Hamilton, J. A. Robertson, Henry Panting, Richard Murdock, John Solomon, Thomas Panting, William Simmons, Keens & Carew (colonial dispensary), Rosa Elliot (druggist), H. H. McEachnie (druggist), S. J. Gordon, A. S. King, and C. H. Ironside (spirit dealers). Boarding-houses are kept by Mrs. Ironsides, Miss Willington, Miss Palmer, and Mrs. Brebner. The want of a good hotel is recognized.

The crop of sugar for 1889 is estimated at 3,000 hogsheads, all muscovado.

MOSES H. SAWYER,
Consul.

UNITED STATES CONSULATE,
Trinidad, September 1, 1890.

INDUSTRIES OF TRINIDAD.

REPORT BY CONSUL SAWYER.

SUGAR-CANES.

After experimenting with forty-three kinds of sugar-canes in this colony six only have been accepted as well adapted to this soil and climate, namely, Otaheite, Bourbon, Giant-Scarlet, Transparent, Congo, and Red Ribbon.

But the Otaheite cane covers the greater part of the sugar plains of Trinidad, Bourbon being next in favor. The others are planted in certain localities requiring hardiness or some other peculiarity according to the notion of the planters. Otaheite is the cane of canes. It is of a beautiful golden color and grows to a large size and height, which it preserves for many years. On some of the richest lands of Trinidad Otaheite has been known to ratoon successfully for twenty-three years.

SUGAR-MAKING.

Common process.—The canes having been pressed by machinery at the mill, the juice is pumped into clarifiers, whence it is run into the open batteries known as "copper walls," where it is boiled into sugar and run into coolers. After cooling it is packed in hogsheads or tierces and left to drain into tanks beneath, and this molasses is pumped into puncheons. This is muscovado sugar. By this process not more than 75 per cent. of saccharine matter is saved. This sugar, that is of a very dark color, is mostly shipped to the United States for refining purposes. It is wet and heavy with the molasses it contains that continually drains from it for several weeks. The losses of saccharine and drainage must be nearly 50 per cent.

Concrete process.—The cane juice is pumped from the mill to the clarifiers, where it is purified and then passed on to the trays, where it is concentrated up to about 30° Baumé. The sirup now passes into the drum (a large revolving cylinder about 10 by 4 feet, containing spiral blades of iron) at one end and out at the other end, during which time it is exposed to hot air drawn through the drum by a fan. The concrete leaves the drum at a temperature of about 200° Fahr., and is then put into bags, where it soon becomes quite hard, and is ready for shipment in a few hours. There is no drainage, no molasses. From the time the juice enters the trays till it leaves the drum is forty-five minutes. One concretor evaporates about 450 gallons of juice per hour. The test is from 80 to 84 per cent.

Centrifugal process.—The juice having run from the clarifiers into the batteries or copper walls, it is boiled into sirup of about 28° Baumé, and then transferred to the open steam pans, where it is boiled into sugar. It is then run into oscillators and a few hours afterwards placed in boxes known as coolers, where it remains for several days. It is now completed by being dried in centrifugals, the evolutions of which are fifteen hundred to a minute.

These sugars test from 88 to 93 per cent. of saccharine. They are packed in bags and generally shipped to the United States for refining purposes. They are of brown color and dry, and the process of making is economical.

The vacuum pan process.—When the sirup has been boiled in the copper walls to Baumé of 28°, instead of being run into open steam pans, it goes into air-tight vacuum pans, where it is reboiled and then is sent to the coolers and afterwards into the centrifugals. It is always packed in bags. This process gives a test of 97 to 99 per cent. of saccharine matter and is the most superior process known for making sugar.

The higher qualities of these crystals are of a beautiful light color, being prepared for use without further refining. They are all shipped to Europe. The lower qualities, called dark crystals, are sometimes shipped to the United States, as they will bear further refining. They are always packed in bags, as the centrifugal part of the process converts the wet or moist portions contained therein into dry sugar.

This process has the advantage of making molasses into sugar. This is a beautiful golden color, and is much used in this colony. The surplus is packed in bags and shipped to Europe and occasionally to the United States.

As a vacuum pan can be introduced into the machinery of a sugar estate for $50,000, the productions of saccharine thereby amounting to about 97 to 99 per cent. and the price of crystal sugars being 25 per cent. higher than those of muscavado, the vacuum pan is the most economical process of them all.

During the sugar depression of the past few years, until 1889, the vacuum-pan sugar estates of Trinidad were doing a fairly prosperous business, while the estates having the other processes were going into bankruptcy, and this was the condition throughout the West Indies.

In order to save themselves from utter bankruptcy many owners of the estates introduced the vacuum-pan process.

THE IMMIGRATION TAX.

As the abolition of the export tax on sugars by those colonies or States desiring to have the advantage of the reduced import duties on the same in the United States became necessary, the Trinidad Government decided to forego the usual annual levy of an export tax on sugar January 1, 1889, and to transfer the same to what it pleased to term an "immigration tax." Many of the shippers of sugar to the United States at once got into a controversy with the American consul, as he refused to sign their invoices unless the immigration taxes were inserted therein, which they at first refused to do. The consul was acting under instructions, and it is now generally admitted that his course was right.

SUGAR ESTATES IN TRINIDAD.

[Inclosure in Consul Sawyer's report.]

Number and names of the sugar estates in the colony, to whom belonging, and the quantity and description of sugar made on each estate, for the year ended June 30, 1889.

[Compiled from information furnished by the owners or agents of the various estates. J. Cunningham. September 27, 1889.]

Names of estates.	Names of owners.	Description of sugar made.	No. of hogsheads.
County of Caroni.			
Adela	J. E. Coryat	Common process	251
Bonne Aventure	C. Tennant, Sons & Co., London	Centrifugal, 395; common process, 192.	587
Brechin Castle	Gregor Turnbull & Co., Glasgow	Vacuum pan	2, 531
Camden	John Cumming	Common process	1, 015
Caroni Uzine, comprising Frederick, McLeod Plain, Washington, St. Marie, and Curèpe.	Gregor Turnbull & Co., Glasgow	Vacuum pan	8, 202
Concord	C. Tennant, Sons & Co., London	Centrifugal, 255; common process, 150.	405
Edinburgh	N. W. Brunton	Common process	292
Endeavour	R. de Verteuil	do	575
Esperanza and Providence	W. F. Burnley & Co., Limited, Glasgow.	Centrifugal, 1781; common process, 124.	1, 905
Exchange	John Cumming	Centrifugal	1, 275
Leonice	H. Cornilliac	Common process	172
Milton	C. Tennant, Sons & Co., London	do	318
Mon Plaisir	Heirs of F. Zurcher. In chancery, W. Howatson, receiver.	do	738
Mon Jaloux	Kelly, heirs of Anne	do	236
Mount Pleasant, Forres Park, Cedar Hill, and Diamond.	G. T. Fenwick	do	1, 218
Perseverance	Audley C. Miles, Bristol	Vacuum pan	857
Do	John Cumming	Common process	726
Petersfield	Colonial Company, Limited, London.	do	850
Phœnix Park	W. F. Burnley & Co., Limited, Glasgow.	Centrifugal	895
Plaisance	C. Tennant, Sons & Co., London	Centrifugal, 401; common process, 74.	475
Rivulet	Gregor Turnbull & Co., Glasgow	Centrifugal	341
St. Clair	Heirs of F. Zurcher. In chancery, W. Howatson, receiver.	Common process	142

Number and names of the sugar estates in the colony, etc.—**Continued.**

Name of estates.	Names of owners.	Description of sugar made.	No. of hogsheads.
County of Caroni—Cont'd.			
St. Helena	G. Turnbull & Co., Glasgow	Centrifugal	372
Spring and Caracas	J. Henderson	do	380
Trafalgar	Ambard & Cadet. In chancery, Wm. Scott Kernahan, receiver.	Common process	300
Waterloo	John Cumming	Vacuum pan	2,026
Wilderness	J. W. Warren	Common process	258
Woodford Lodge	Geo. Fitt and S. Henderson	Centrifugal	715
			22,877
County of St. George.			
Aranjuez and Barataria	André Blasini, Paris	Vacuum pan	1,735
Champ Elysées	Dr. de Boissière	Common process	10
Dinsley	T. O. Pile	Vacuum pan	443
El Socorro	Colonial Company, Limited, London.	Concrete	960
Garden and Bonair	W. F. Burnley & Co., Limited, Glasgow.	Common process	741
Golden Grove	F. W. LeBlanc	do	6[illegible]7
La Florissante	do	do	222
Laurel Hill and Cane Farm	Heirs of F. Zurcher. In chancery, W. Howatson, receiver.	do	872
Macoya and Eldorado	W. F. Burnley & Co., Limited, Glasgow.	do	1,193
Orange Grove	do	Vacuum pan	2,402
Paradise	Creditors of Campbell Hannay	Centrifugal	240
River and Cascade	N. W. Brunton	Common process	238
St. Augustin Usine, St. Gill, and Streatham Lodge.	Creditors of A. Ambard & Son. In chancery, J. Cumming, receiver.	Vacuum pan	2,278
St. Clair	W. F. Burnley & Co., Limited, Glasgow.	Common process	501
Valsayn and Caroni	Paul Giuseppi. In chancery, J. Cumming, receiver.	do	1,114
Woodbrook	W. F. Burnley & Co., Limited, Glasgow.	Vacuum pan	232
			13,537
County of St. Patrick.			
Belle Vue	C. Tennant, Sons & Co., London	Vacuum pan, 356; Common process, 45.	401
Columbia and Lochmaben	Colonial Company, Limited, London.	Vacuum pan	210
La Retraite	G. Turnbull & Co., Glasgow	Common process	251
L'Envieuse	John Cumming	do	153
Mon Désir	C. Tennant, Sons & Co., London	Centrifugal	437
Perseverance and St. John	Heirs of John K. Welch, London	Vacuum pan	685
Ste. Marie, Beaulieu, and Mon Plaisir.	Gregor Turnbull & Co., Glasgow	Centrifugal	416
			2,553
County of Victoria.			
Ben Lomond	C. Tennant, Sons & Co., London	Common process	541
Bien Venue and La Fortuné	do	Vacuum pan	2,116
Bronte	M. Lennon and heirs of G. Shine	Common process	691
Buen Intento and Broomage	C. Tennant, Sons & Co., London	do	578
Cedar Grove Usine, comprising Palmiste, Canaan, and Philippine.	James Lamont, Glasgow	Vacuum pan	2,090
Concord C	Colonial Company, Limited, London.	Common process	645
Craignish	G. Liddelow	do	404
Elswick	J. Palmer	do	45
Esperance	E. Cipriani	do	251
Fairfield	G. Turnbull & Co., Glasgow	do	183
Friendship (R.)	Mrs. Rowbottom	do	276
Guaracara	O. Kelly	do	46
Harmony Hall	Colonial Company, limited, London.	do	1,380
Hermitage	C. Tennant, Sons & Co., London	do	414
Hope	P. McIntosh	do	100
Hindostan	C. D. McLean	do	300
Inverness	C. Tennant, Sons & Co., London	Centrifugal	1,043
Jordan Hill	M. Lennon and heirs of G. Shine	Common process	674
La Resource	Price Bros., London	do	344
Lothians	G. Turnbull & Co., Glasgow	do	482
Malgrétout, Glenroy, and Friendship.	C. Tennant, Sons & Co., London	Vacuum pan	1,090

Number and names of the sugar estates in the colony, etc.—Continued.

Name of estates.	Names of owners.	Description of sugar made.	No. of hogsheads.
County of Victoria—Cont'd.			
New Grant	C. Tennant, Sons & Co., London.	Common process	452
La Plaisance	G. Turnbull & Co., Glasgow	Centrifugal	535
Reform and Fortitude	J. A. McQuaide. In chancery, A. Riddell, receiver.	Common process	633
Retrench	Heirs of Robert Wilson, Dublin.	....do	406
Tarouba	Colonial Company, Limited, London.	Common process, 705; concrete, 575.	1,280
Wellington, Picton, and Dumfries.	John Cumming	Common process	1,838
Williamsville and Brothers..	Colonial Company, Limited, London.	Centrifugal, 544; concrete, 1006.	1,550
Usine St. Madelaine, comprising Petit Morne, Corinth, Golconda, Cedar Hill, Woodford Dale, Union Hall, Les Efforts, and Plain Palais.	....do	Vacuum pan	7,613
			27,895
Total			66,862

RECAPITULATION.

Vacuum pan	29,865
Centrifugal	9,775
Common process	24.681
Concrete	2,541
Total	66,862

BIRDS OF TRINIDAD.

Frequent inquiries by Americans as to obtaining bird plumage in Trinidad or Tobago induces a reference to this subject.

The most conspicuous bird in Trinidad is the corbeau, a large, black vulture belonging to the order *Accipitres*. Being protected by law, he has become bold, and his occupation, that of assisting the scavengers, is disgusting. The value of his service, however, is questionable, as it would be far better for the sanitary condition of the city to oblige coolies to clean the streets properly, and destroy the corbeaus, in order that the people may have the privilege of enjoying themselves beneath the great trees that ornament the public squares and parks of the city.

There are two hundred and ninety-eight kinds of birds in the colony, many of which are very beautiful.

Previous to the passage of the "wild birds ordinance," which prohibits the exportation of bird-skins, excepting for scientific purposes, many were shot and their skins sent away to be used in ornamenting the hats or head-dresses of the fashionable ladies of London, Paris, Berlin, Madrid, New York, etc., as the plumage of the Trinidad humming-bird, blue-bird, scarlet-ibis, or cardinal gave increased brilliancy to the proudest dames of those capitals. But all that trade in bird plumage is now prohibited by the enforcement of the said ordinances, the birds of the colony being permitted to multiply, and as they perch or fly amidst a foliage of a thousand colors, we are reminded of the relieving scenery in a charming holiday pantomime.

TRINIDAD ASPHALTUM.

The Pitch Lake, at La Brea, is too well known to require a description other than that it has an area of about 90 acres, and contains the best quality of pitch in the world. Humboldt believed this pitch to be inexhaustible, because of the pitch springs beneath, and as the excavated places, dug with the pick-axe, refill with pitch in a few days, proves that there is a subterranean flowage.

Lord-Admiral Cochrane, Earl of Dundonald, one of England's greatest naval heroes, obtained a lease in perpetuity from the Government in 1847.

Cochrane was in command of the West India squadrons at that time, when he often met his old friend Lord Harris, then governor of Trinidad. Through the friendship of Lord Harris, and by virtue of Cochrane's important naval services, the grant of the Pitch Lake was obtained.

The lease was given at ridiculously low terms to the admiral, as the pitch was of no value at that time, the requirement being that a small quantity of pitch be dug and shipped to England for scientific purposes annually. But as Lord Cochrane carelessly failed to comply with the terms he lost the lease by its reversion to the Crown.

Considering the great value of this property at this day, had the admiral fulfilled his part of the contract his heirs would now (no doubt) be the most wealthy family of the Scottish nobility.*

The lake is now leased to Messrs. A. S. Barber & Co. for a term of twenty-one years, from 1888, for £10,000 ($48,000) a year, payable to the Trinidad Government. There is much dissatisfaction because of the cheapness of the terms and for other generous privileges given to the lessees.

MOSES H. SAWYER,
Consul.

UNITED STATES CONSULATE,
Trinidad, August 20, 1890.

PUBLIC DEBT OF HAYTI.

REPORT BY MINISTER DOUGLAS, OF PORT AU PRINCE.

In my dispatches numbered 25, 36, 44, and 48, of which the former two are dated January 6 and February 20, and the latter two are of March 13, 1890, I had the honor to submit to you some statements which had reference to the financial proceedings and situation of Hayti.

In the present dispatch I desire to present to you a somewhat more comprehensive outline of that situation, confining myself, however, more especially to the national debt of the Republic, and to do this it may be convenient to refer to some of the statements already made in the dispatches to which I have just adverted.

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* The Dundonalds, however, still own valuable pitch land outside of the lake.

I am indebted to Mr. Charles Weyman, a successful American merchant resident here since 1877, for patient and intelligent aid in searching out and collecting the facts and figures herein presented.

It is probable that President Hyppolite's annual message, which was read to the national assembly on the 9th instant, but which has not yet appeared in print, may give some interesting details concerning the financial situation of the country, and while the figures and statements of this dispatch may be taken as at best only approximate, they are nevertheless thought to be fairly reliable.

The outstanding obligations of this Republic, or its public debt, may, for convenience, be summarized with tolerable exactness in eleven categories as follows:

Category No. 1. The *dette convertie*, which is represented by 41,994 bonds of $80 currency each, amounts to $3,359,520 currency and bears interest at the rate of 5 per cent. per annum, payable in currency on the 1st of January and the 1st of July of every year. The debt in its present form comes from bonds formerly known as "titres de la caisse d'amortissement," which was established in 1876 to provide for some obligations of the Government up to the end of the revolution of 1875. They were converted into their present form December 31, 1887. The interest amounts annually to a little less than $167,976 currency, there being in the law a provision for the payment by lot of 1 per cent. per annum on the principal. At first the annual sum to be paid by the Government on this debt was $201,571.20, and it is only slightly less than that now. Both interest and principal are guarantied by a custom's duty of 51 cents on every 100 pounds of coffee exported.

Category No. 2 is the *dette consolidèe* which consists of 4,612 bonds of $100 currency each, making $461,200 currency. This category bears the same rate of interest, has the same guaranty, and has the same arrangement for the payment of the principal as category No. 1.

It was created to cover (1) the salaries of government employés unpaid and other internal debts due up to September 30, 1887; (2) all interests due on the "titres de la caisse d'amortissement" December 30, 1887, and (3) the commission of 2 per centum allowed to national bank on all bonds issued for this and the preceding category. It will be seen that this debt called originally for $27,672 currency annually, which can now be diminished only by a little.

There are two other categories of the public debt which were originally placed in the "caisse d'amortissement." They are somewhat peculiar from the fact that the obligations are still in the form of "titres" of that "caisse," that there does not now appear to be any reliable guaranty for their redemption, and that they bear interest at the rate of 18 per centum per annum.

Category No. 3.—The first of these amounts to $425,592.78 gold, on which is due interest amounting to about $150,000, making a total of about $575,592.78 gold. The annual interest is $76,606.70 on the debt which had its origin in (1) advances made to the Saget administration for the purpose of withdrawing from circulation the then paper money at the rate of 300 gourdes paper to $1 gold, and (2) a loan of 884,836.07 francs to meet a payment on the old French debt. If interest be allowed on the interest due but unpaid, as I presume it may be claimed, the debt will require an annual expenditure of $103,606.70 gold. Although at the time when this obligation was created the revenues of the Republic generally were pledged for its payment, this guaranty has since been applied to other loans and debts. The firm of Minot, Scott & Co., of Port au Prince, alone holds $356,432.40 of this debt. These gentlemen, in connection with others interested, are now endeavoring to come to some amicable arrangement with the government in regard to the matter and it is generally thought that they will succeed.

Category No. 4.—The second of the two categories still in the "caisse d'amortissement" amounts to $235,400 currency. It was created at different times to meet engagements that were considered privileged. The annual interest is $42,372 currency.

Category No. 5, which had its origin in the loan made in France by this government under the Domingue administration in the year 1875, was represented by 72,353 obligations, originally of 500 francs each. In 1885, however, by a convention between the government and the lenders, the obligations were reduced to 300 francs each and the interest from 6 to 5 per centum per annum. There were at that time unpaid 70,908 interest coupons at 60 francs each, so that on July, 1885, the debt stood thus: 72,353 obligations of 300 francs each, 21,705,900 francs; 70,908 obligations of 60 francs each, 4,254,480 francs; making a total of 25,960,380 francs, or, the franc being taken at 18¾ cents, $4,867,571.25, on which about $250,000 has since been paid, thus leaving the debt at about $4,617,571.25. It is guarantied by 20 per centum of the export duties on coffee, and calls for 7,557,622.80 francs or $292,054.28 per annum in interest and payment on the principal, the tables for payment of interest and on the principal being so arranged as to require the same amount every year, an arrangement by which it is estimated that the whole debt will be extinguished July 1, 1922.

Category No. 6.—Counting as part of the national debt the paper money now in circulation, or rather all of it that has been issued by government authority, that debt is thereby augmented by $5,546.352.

Category No. 7.—Bank loans.—The national bank on its establishment took the engagement according to its character to advance to the government $300,000 gold on condition that interest at 6 per centum per annum should be paid on that sum, and that the principal should be returned on the expiration of its charter in the year 1929. Other loans have since been made by the bank to the government, and it is estimated that on them there is now due about $300,000 currency. So that the government's present indebtedness to the bank may be put at $600,000, of which one-half is gold and one-half currency, and on which the yearly interest amounts to $18,000 gold and $18,000 currency.

Category No. 8.—On what is known as the Légitime loan of $600,000 there appears to remain due about $552,000 gold. This was guarantied by a customs duty of $1.20 on each 100 pounds of coffee exported, and interest at the rate of 18 per centum per annum was promised; $99,360 would seem to be required to meet the annual interest on this debt if the loan be recognized as it was made. To it must be added what is known as a "private loan" negotiated by the so-called President Légitime, which was duly sanctioned by the then so-called Constituent Assembly, and which was originally $163,800 gold. It was guarantied by 46 cents customs duty on each 100 pounds of coffee exported, and it was to bear interest at the rate of 12 per centum per annum, dating from February 15, 1889. It is estimated that the principal of the debt is now about $148,239, which would demand an annual interest of $17,788.68. Together the two debts already mentioned in this category sum up $700,239, and together they would require annually $17,148.68 interest. There is still another form of debt left by Légitime. It is that which consists in "ordonnances" or orders for payment issued by his administration. No exact figures can here be given. But they would pretty surely reach $500,000 currency. It is not intended to refer in this dispatch to any claims for indemnities to which the Légitime régime may have exposed this government.

Category No. 9.—This consists of the loan of $1,000,000 made in October last. The conditions of the loan were such that no interest on it will, at present, be required. Of the loan about $750,000 still remains to be paid.

Category No. 10.—This debt grew out of the loan of 1,587,622.75 francs or $297,679.27, which was made in December last. In order to raise the sum named the government took the engagement to pay to the lenders $446,518.90 according to the receipts from a customs duty of 60 cents on every 100 pounds of coffee exported from January 1, 1890. Payments have been made, so that about $267,911.34 now remain unpaid. It is expected that the whole debt will soon be extinguished.

There was still another loan, made in March last. It was for $1,000,000, and was to be paid, as the receipt came in, from a customs duty of 50 cents on each 100 pounds of coffee exported. Interest was allowed at the rate of 12 per centum per annum on any part of it remaining unpaid after April 18, 1891. It now stands at about $775,000. As in the case of categories No's. 9 and 10 above, it is difficult to gather information as to the amount of interest to be paid, because the principal is often diminished according to the receipts from the customs duties set apart for the purpose. As this loan was made for the purpose of retiring an amount equal to it of paper money, and as I have counted the latter in category No. 6 as a part of the public debt, I do not add to that debt the $775,000 here mentioned.

Category No. 11: There are also some well founded foreign claims, "ordonnances" (orders of payment), salaries, and other forms of obligation, of which it is difficult at present to state the amount with any approach to accuracy. But they may be estimated as reaching about $800,000.

The public debt of Hayti may therefore be taken to stand about as it appears by categories in the following:

RECAPITULATION.

	Currency.	Gold.	Annual payments.
Category 1	$3,359,520.00		$201,571.28
Category 2	461,200.00		27,672.00
Category 3		$2,575,502.78	103,606.70
Category 4	235,400.00		42,372.00
Category 5		4,617,571.25	292,054.22
Category 6	5,546,352.00		
Category 7	300,000.00		18,000.00
		300,000.00	18,000.00
Category 8		652,000.00	99,360.00
		148,239.00	17,788.66
	500,000.00		
Category 9		752,000.00	
Category 10		267,911.34	
Category 11		800,000.00	
	10,402,472.00	8,011,814.37	820,424.86

The value of the paper gourde fluctuates. Since I came here I have seen it 1.45 to the $1 gold. Just now the rate is 1.10, and some shrewd observers of money matters seem to think that the gourde will soon be at par with gold. But if it be taken at the rate of to-day, 1.10, to the $1 gold, that part of the national debt which is about expressed in currency will represent $9,456,792.72 gold, and this will place the national debt of Hayti at $17,468,107.09 gold. On this, annual payments to the amount of $794,096.20 gold will be required, if the existing money contracts be literally carried out.

It will be observed that this government has based its important financial engagements chiefly on the export duty on coffee. This duty now amounts to $3,86⅔ gold per 100 pounds. In the year 1870, the duty was fixed at $2.50 on the 100 pounds. In 1877, fifty cents was added for the "caisse d'amortissement," making it $3 per 100 pounds. During the Salomon administration, the prices of coffee in foreign markets became so low that the export duties on that article were re-adjusted as follows:

On each 100 pounds fixed duty	$1.66⅔
20 per centum for caisse d'amortissement	.33⅓
10 per centum for Gonaïves claims (1883)	.16⅔
Making	2.16⅔

Since 1885 a new duty of $1 has been added to this, and subsequently 20 per cent. of the increase was also added to meet some new obligations. That made the duty $3.36⅔. The present government has still further increased it by adding 50 cents as a guaranty for the loan of October, 1889. So that the duty is now $3.86⅔ on each 100 pounds of coffee exported. The several guaranties referred to in the foregoing categories are taken out of the several divisions of the duties above indicated.

It is said that the average "good crop" of coffee ought to afford about 70,000,000 pounds for exportation. During the fiscal year ending September 30, 1888, there were 86,138,208 pounds exported. There were no statistics for 1889. But running back eight years from 1888, the average annual exportation was 61,395,452 pounds. But the present crop promises to exceed any of its recent predecessors. If it reaches the crop of 1888, it alone will give in revenue to the government $3,330,676.37. The minister of finance and foreign affairs has stated to me in conversation that he expected that the revenue of the government from the custom-houses would this year reach and might possibly exceed $7,000,000. Even this sum would not leave a very large amount over and above the actual expenses of the government and the payment of its engagements as above outlined.

FREDERICK DOUGLASS,
Minister.

UNITED STATES LEGATION,
Port au Prince, Hayti, June 21, 1890.

PROSPERITY OF BERMUDA.

REPORT BY CONSUL BECKWITH, OF HAMILTON.

The fiscal year commencing September 1, 1889, and ending June 30, 1890, has been, on the whole, a most profitable one for Bermuda. The winter was a very mild and favorable one. This was also the case throughout the United States, and the diminished number of visitors to Bermuda is doubtless largely due to this cause. This year was also a memorable one in Bermuda history, because of the commencement and completion of the Bermuda and Halifax cable, which connects Bermuda by electricity for the first time with the rest of the world. This cable will, no doubt, be of inestimable advantage to the islands in all ways. It will furnish latest information to merchants, brokers, etc., in regard to the current market prices, sales, etc. It will make the islands a port of call for vessels, and furnish reports of wrecks, derelicts, etc., as soon as brought in. It will enable an observer to furnish valuable meteorological data to the Hydrographic Office, and lastly, it will prove a great convenience to the many tourists and invalids coming to Bermuda, as enabling business men to keep in connection with their business, and invalids to send immediate information to their home.

The crop season of 1890, just ended, has been perhaps the most profitable of any in the history of Bermuda, considering both the quantity raised and the prices obtained therefor. The disastrous outcome of the preceding season of 1889 left the planters and merchants heavily in debt and much discouraged; but the magnificent success of this last season has made money easy, and enabled all classes to settle up their back debts and have something over to face the coming year. The crop season began very early in the year, about the first of March, thus enabling the Bermuda planters to place their produce on the market when there was little or no competition. Moreover, a careful system of inspection of produce shipped, and of the packing thereof, was instituted and maintained this year, with the result of inspiring greater confidence in American buyers, and thereby maintaining uniform and higher prices. But little arrowroot was grown or shipped this year, the total amount being 9,213 pounds, amounting to $2,952. The lily crop was large and in good condition, but prices were low and uncertain, owing to overproduction, causing a glut in the foreign market. A few growers, however, made money by selling both flowers and bulbs. This, however, is an injurious practice, as the selling of flowers at low prices spoils the market for the United States florists, who will not then buy the bulbs. The onion crop was large and brought good prices, being in good condition and well packed. The average price was about 6*s*., as compared with 2–2½ of the previous year.

Tomatoes, potatoes, and beets all yielded well and brought good prices until the end of the season, when, meeting with increased competition, their value fell very suddenly. Much less artificial manure was used last season than heretofore, the planters resorting in lieu thereof to stable manure and sea-weed. The planters are preparing to put in a large crop for the coming season, and both they and the merchants are looking forward to a good year.

HENRY W. BECKWITH,
Consul

UNITED STATES CONSULATE,
Hamilton, August 26, 1890.

BEER IN PANAMA.

REPORT BY CONSUL-GENERAL ADAMSON.

Malt.—No malt is imported into this consular district and none is prepared here.

Beer.—The value of the beer, ale, and porter imported for sale in the two ports of this Isthmus, namely, Panama and Colon, is estimated by the largest importers here as amounting, in 1888, to about $200,000 in

United States coin. The failure of the canal enterprise at the end of 1888 left the importers with a heavy stock on hand and a decreasing demand owing to the rapid exodus of canal laborers.

The importations for both ports during 1889 were therefore insignificant—probably $30,000 worth.

The division of the malt-liquor trade during 1888 was about three-fifths to Panama and two-fifths to Colon. In 1889 the far greater part of the business was with Panama.

About three-fourths of the malt liquors used on this Isthmus are German lager beers, and the balance of the trade is divided between the lager beer of the United States (mainly Milwaukee) and the ale and porter of British breweries.

Almost the entire importation of British malt liquors is sold and consumed at Colon. The Panama trade uses mainly German lager beer, but the American lager appears to be growing in favor.

So little comes in wood or in quart bottles that it may be understood that beer in pint bottles is the only kind used. It comes generally in boxes containing 7 dozen pint bottles, the wholesale price of which, reduced to United States coin, is about $1 a dozen. It is retailed at grocery stores at about 12 cents a bottle and at bars with ice at 20 cents a pint bottle.

I am told that as a rule the German beers are purchased by importers and that the British article comes on consignment to agents, while the American beer is partly consigned and some is purchased by dealers through their agents in New York.

THOMAS ADAMSON,
Consul-General

UNITED STATES CONSULATE-GENERAL,
Panama, January 30, 1890.

IRISH AGRICULTURE.

REPORT BY CONSUL REID, OF DUBLIN.

I have the honor to submit herewith the following facts as to the acreage under crops and description of live stock in Ireland for the year 1890, and also a detailed report as to the present condition of the potato crop, the information being obtained from official sources.

The total extent under crops in 1890 amounts to 4,918,965 acres, being a decrease as compared with 1889 of 137,051 acres, or 2.7 per cent.

The decrease according to provinces is as follows:

Provinces.	Acres.	Per cent.
Leinster	36,105	2.6
Munster	43,696	3.5
Ulster	31,655	1.8
Connaught	25,595	3.8

In 1890 the acreage under grass is 10,211,174, being an increase of 212,887 acres over 1889. The fallow land for 1890 is given at 15,538 acres, being an increase over 1889 of 3,088 acres. The area taken up by woods and plantations in 1890 is 327,447 acres, or an increase of 811 acres over the amount returned for the previous year.

The extent of bog and marsh, barren mountain land, etc., is given at 4,855,629 acres, while that of 1889 was 4,935,354.

As compared with the previous year, the acreage under oats for the season of 1890 shows a decrease of 18,711 acres; of barley, 3,940 acres; of bear and rye, 1,311 acres. Although wheat is but little grown, as a rule there has been an increase in 1890 over 1889 of 3,463 acres under this cereal. The increase under beans and peas for the year is 13 acres. The net total decrease for the year 1890 as compared with the previous season, under cereal crops, is 20,486 acres.

There has been an increase of green crops for the year as follows: Mangel-wurzel and beet roots, 2,450 acres; cabbage, 3,520 acres; vetches and rape, 228 acres; turnips, 2,552 acres; carrots, parsnips, and other green crops, 2,546 acres. The extent under potatoes in 1890 is 790,801 acres, being a decrease of 6,433 acres as compared with 1889.

The acreage under flax for 1890 is 96,871, which is a decrease of 16,781, as compared to 1889. The area for hay under clover, etc., the present year is 631,639 acres, being a decrease of 38,603 acres. The area for hay on permanent pasture for 1890 is 1,461,452, and for 1889, 1,517,280, a decrease of 55,828 acres.

The statistics for the present year as compared with 1889 show an increase in the number of horses and mules of 11,369; of cattle, 146,579; of sheep, 534,618; of pigs, 189,609. Of poultry enumerated for 1890, 1,026,572 were turkeys, 2,211,146 geese, 3,001,617 ducks, and 9,171,774 were ordinary fowl.

The condition of the potato crop at the present writing is such as to cause considerable anxiety and even alarm, on account of the blight. Already steps are being taken to secure Government assistance for the districts most seriously afflicted, and to provide employment for the people, as a means of enabling them to get through the winter, who are largely dependent upon the potato crop for their subsistence. I inclose herewith the printed report of the land commissions, showing the present status of the potato crop in the several counties of Ireland.

ALEX. J. REID,
Consul.

UNITED STATES CONSULATE,
Dublin, August 29, 1890.

THE POTATO BLIGHT.

[Inclosure in Consul Reid's report.]

The following report upon the condition and prospects of the crops up to August 15, 1890, has been compiled from returns received by the Irish land commissioners from the assistant commissioners and valuers in their employment.

County and district.	Are potatoes mainly grown for sale, consumption, or pig feeding?	To what extent and in what manner has the disease shown itself?	Is the potato crop generally above or below average?	Will the crop of sound potatoes be above average, average, or below average?	Remarks.
Ulster.					
Cavan (East)	Consumption and pig feeding.	Very general throughout district. Stalks only affected. Disease spreading rapidly.	Below	Much below	With late planted varieties disease set in at such an early stage as entirely to check growth.
Donegal:					
West	Consumption and pig feeding; also when plentiful for young cattle and horses.	Disease shows itself everywhere. Tubers affected only within last few days; very bad on light, moory, wet, or worn soils; dry clay soils not much affected.	Much below	Very much below	The disease is spreading rapidly and the prospect is very bad indeed.
Milford	To a small extent for sale; largely for consumption and pig feeding; also when plentiful for young cattle and horses.	The disease general throughout district. Most apparent with early kinds. Tubers not much affected. Late varieties not ripe; will probably suffer severely. Dry land fairly free.	Below	Seriously below, probably not more than half a crop.	Unless the weather changes the prospect is very bad.
Moville	Mainly for consumption and pig feeding; to a small extent for sale.	Disease appears mainly in early varieties; late varieties pretty healthy. Disease mainly confined to stalks, chiefly leaves; worst on cold and wet lands.	Above	Average if weather is favorable.	
Down	Very largely for sale, as well as for consumption and pig feeding.	The crop generally is healthy. Disease appears mainly in the stalks; to a small extent in tubers, chiefly in cold and wet soils.	Average	Average	Potatoes will probably be soft.
Fermanagh	Consumption and pig feeding.	General throughout district, mostly in poor and wet lands. Not much in high-lying dry lands. Stalks only affected as a rule. Tubers affected in early varieties.	Below	Below	
Londonderry (North)	Pretty largely for sale; also for consumption and pig feeding.	General throughout district; worst in cold wet soils. Tubers only slightly affected. The crop being mainly early planted and well grown before disease appeared, will not suffer much.	Above	Doubtful, depends entirely on the weather.	
Tyrone:					
North	Consumption and pig feeding.	Disease has appeared pretty generally on the leaves and stalks, but so far has only affected the tubers in exceptional cases.	Much above	Apparently above average; too early to speak decidedly.	Potatoes set late will probably produce soft and unmatured tubers.
South	do	Stalks generally diseased, tubers also in some cases. Much worse in light mountain or wet lands.	About average	Probably below	Do.

County and district.	Are potatoes mainly grown for sale, consumption, or pig feeding?	To what extent and in what manner has the disease shown itself?	Is the potato crop generally above or below average?	Will the crop of sound potatoes be above average, average, or below average?	Remarks.
Munster.					
Clare:					
West	Mainly for consumption, slightly for pig feeding.	Very little on good dry soil. Very general in moory and poor soils, especially near the sea-coast. Both tubers and stalks affected, generally speaking, very seriously.	Below	Very much below	Potatoes are largely grown in bog land, in which case the disease is very serious.
East	Principally for consumption; also for pig feeding; very little sold.	In good dry land little harm has resulted. In cold wet land, and light mountain land, both stalks and tubers are seriously affected.	do	do	A large proportion will be soft and unmatured.
Cork:					
Macroom, Bandon, and Cork.	Mainly for consumption; also for pig feeding; very little for sale.	Disease general on all classes of land. On poor mountain lands tubers already rotting. Worst near the sea.	do	do	Crop will probably consist largely of soft unmatured tubers.
Skibbereen and Clonakilty.	do	Very general in all classes of land. In many cases stalks withered away and all growth stopped. Much worse near sea-coast, where the crop will be about one-fourth of an average. Early planting appears to have produced best results.	Very much below, especially on coast.	Very seriously below	The crop is an absolute failure in poor land.
Kerry (North)	do	General. Worst in old tillage. As a rule, stalks only affected.	Below	Below	Results depend very much on weather.
Limerick:					
Rathkeale and Newcastle.	do	Very general, especially upon cold, wet, and boggy lands. Disease generally confined to stalks. Tubers affected in some instances.	do	do	Do.
Glin	do	Slightly on dry graveled soils. Badly on heavy, cold, or wet soils. Early planted potatoes pretty healthy; late planted diseased. Tubers tolerably free.	Average	Doubtful; late planted potatoes will probably give very bad results.	
Tipperary:					
Nenagh	do	Good dry soils, slightly affected. Heavy wet soils seriously diseased. As a rule, stalks only affected. Generally speaking, crop fairly healthy.	do	Probably average	Very much depends on weather.
Cashel and Tipperary.	do	Generally throughout district, especially in low, wet lands.	do	do	Poor and inferior soils will probably produce small unmatured tubers.
Waterford	Mainly for consumption and pig feeding; small quantities sold when grown near towns.	Generally throughout district. Most serious on cold wet lands. Not much affected on dry soils, which promise a fair crop. Disease is much worse on sea-coast than inland.	Below	Near sea-coast much below; inland, not so serious.	

Leinster.					
Carlow	Consumption and pig feeding.	Disease very general, mainly confined to stalks. Worst in mountain and lake districts.	do	Below	
Dublin (North)	Mainly for sale	The crop generally is healthy. Early kinds show disease in tubers; late varieties in stalks only.	Above	Above; but quality inferior, much depending on weather.	Great care is taken in cultivation in this district; the produce of late varieties depends largely on the weather.
Kilkenny:					
Johnstown	Mainly for consumption	Stalks only affected. Disease most apparent in hilly districts and poor cold soils.	Below	Below	
Callan	do	Disease pretty general. With few exceptions, stalks only affected.	do	do	Wet weather will cause disease to spread rapidly.
King's (Birr)	Mainly for consumption and pig feeding: also for feeding cattle and horses in winter.	Disease very general. Stalks only affected, except in a few instances in which tubers are touched. Generally speaking, growth is not yet stopped.	do	do	Very much depends on the weather.
Longford	Mainly for consumption and pig feeding; very little for sale.	Crop generally affected. In most cases stalks only. Tubers beginning to be affected.	About average	do	
Louth	Mainly for consumption and pig feeding.	Disease very general. Tubers not affected to any serious extent.	Rather below	Very doubtful	
Meath:					
Kells	Consumption	Disease general in stalks. Tubers appear to be affected in early varieties only.	Average	Possibly below	Results depend greatly on weather.
Drogheda	Mainly for consumption; to a small extent for pig feeding.	Disease pretty general, especially on low-lying lands. Tubers slightly affected.	do	Average	
Queen's (Mountmellick)	Largely for consumption and pig feeding; and to some extent for sale.	Disease general over district; at present confined to stalks. High dry land comparatively free. Worst in low-lying, sheltered spots.	do	do	Tubers will be soft and badly matured.
Westmeath	Mainly for consumption and pig feeding; also for sale.	The crop was very healthy until last few days. Disease now spreading, but leaves only affected; stalks mostly free.	Above	do	
Wexford	Mainly for consumption; also for pig feeding.	Disease pretty general, but so far almost entirely confined to stalks; wet lands most affected. Tubers of early varieties diseased.	Below	Much below	Generally speaking, growth has ceased, and must result in a crop of small and unmatured tubers.
Wicklow (West and South-west.	Mainly for consumption; also for pig feeding; sold to a small extent.	Disease general over district. Stalks seriously damaged, tubers slightly affected.	do	do	
Connaught.					
Galway (Galway and Loughrea.)	Mainly for consumption and pig feeding.	On good well-farmed land disease is not serious, leaves only affected. On poorer and badly-farmed land the tops are black and much spotted, and growth appears checked, tubers also being affected.	Average	In good land, average; in wet and poor land, below average.	

County and district.	Are potatoes mainly grown for sale, consumption, or pig feeding?	To what extent and in what manner has the disease shown itself?	Is the potato crop generally above or below average?	Will the crop of sound potatoes be above average, average, or below average?	Remarks.
Connaught—Continued.					
Leitrim (Carrick)	Mainly for consumption and pig feeding.	Disease general throughout district. Early varieties badly diseased. Late varieties, stalks only affected, but tubers small and immature.	Below	Far below	
Mayo	Mainly for consumption, also for pig feeding, cattle feeding, and for sale.	Disease general throughout district. Appears worst along the sea-coast, where potatoes planted in bog were much damaged by early frosts. The effect of the blight has been to almost entirely destroy the crop. In some cases stalks blackened and withered up. Tubers not as yet affected, except rare instances, but generally very small and immature.	Very much below.	Owing to blight setting in unusually early, tubers in many instances will be absolutely unfit for human food. In the poorer, badly cultivated districts the crop will be an entire failure. In good, dry, well-farmed lands, results will prove much better.	
Roscommon:					
Boyle	Mainly for consumption and pig feeding.	General throughout district. Both stalks and tubers affected, the latter only slightly at present. Moory lands have suffered most.	Average, except where damaged by spring frosts.	Below average	Much depends upon weather. There will probably be a large proportion of diseased tubers for pig feeding.
Castlerea, Frenchpark, and Roscommon.	Mainly for consumption and pig feeding; to a small extent for sale.	General throughout district on all classes of land; worst in moory lands which suffered from early frosts. Both stalks and tubers affected, and disease spreading rapidly.	Below	Probably much below average, disease having set in unusually early.	
Sligo:					
Tobercurry	Mainly for consumption and pig feeding; very little sold.	General throughout district. Much worse in poor, boggy, and light land. Stalks much diseased; tubers beginning to be affected.	But for disease much above average.	Much below average unless weather improves.	
Boyle	Mainly for consumption and pig feeding.	General throughout district. Both tubers and stalks affected; fairly good prospect on porous soils. Disease very bad on cold, heavy, or light moory soils; the tubers in the latter instances being small and immature.	Below	Very much below average.	

WOOL AND WOOL MANUFACTURES OF FRANCE.

REPORT BY CONSUL WILLIAMS, OF ROUEN.

ROUEN AND VICINITY.

Roubaix-Tourcoing.—The characteristic feature of the market for combed wool at Roubaix-Tourcoing during the year 1889 was that of a regular and progressive rise. The difference between the extreme prices was about a franc, and was attained by very gradual advances.

The following table, in which the fluctuations in the prices of extra and ordinary qualities of Australian and Buenos Ayres combed wool are noted, illustrates this gradual and moderate rise.

Date.	Australian.		Buenos Ayres.		Date.	Australian.		Buenos Ayres.	
	Extra.	Ordinary.	Extra.	Ordinary.		Extra.	Ordinary.	Extra.	Ordinary.
	Francs.	*Francs.*	*Francs.*	*Francs.*		*Francs.*	*Francs.*	*Francs.*	*Francs.*
Jan. 1	6.50	5.95	5.55	5.45	July 1	6.95	6.65	6.15	5.95
Jan. 15	6.50	5.95	5.55	5.45	July 15	7.10	6.85	6.25	6.95
Feb. 1	6.20	5 75	5.45	5.30	Aug. 1	7.15	6.85	6.25	6.00
Feb. 15	6.20	5 75	5.45	5.35	Aug. 15	7.15	6.85	6.25	6.00
Mar. 1	6.30	5.80	5.55	5.40	Sept. 1	7.15	6.85	6.25	6.00
Mar. 15	6.30	5.90	5.70	5.50	Sept. 15	7.15	6.85	6.25	6.00
Apr. 1	6.55	6.15	5.70	5.55	Oct. 1	7.30	7.00	6.40	6.10
Apr. 15	6.60	6.20	5.75	5.60	Oct. 15	6.30	7.00	6.40	6.10
May 1	6.60	6.20	5.75	5.60	Nov. 1	7.35	7.00	6.40	6.15
May 15	6 60	6.20	5.85	5.70	Nov. 15	7.40	7.05	6.50	6.25
June 1	6.50	6.10	5.75	5.60	Dec. 1	7.45	7.10	6.60	6.30
June 15	6.65	6.20	5.95	5.70	Dec. 15	7.45	7.05	6.60	6.30

The increase in the use of combed wool at Roubaix during the year was very marked. The amount was 25,661,828 kilograms in 1889, against 22,156,150 in 1888, an increase of 3,505,318 kilograms. At Tourcoing the amount was 18,969,443 kilograms in 1889, and 17,747,605 kilograms in 1888, an increase 1,251,838 kilograms. Combining the markets of these two places, we have 44,661,271 kilograms in 1889 and 39,904,115 kilograms in 1888, or 4,757,156 kilograms in favor of 1889. In spun wool the increase is equally marked. Roubaix in 1888 produced 4,144,494 kilograms of spun wool; in 1889 5,260,287 kilograms, an excess of 1,115,793 kilograms. At Tourcoing from 2,746,844 kilograms in 1888 the increase was 3,145,515 kilograms in 1889, a difference of 432,671 kilograms. The spun wool in these two markets in 1889 amounted to 8,409,802 kilograms; in 1883 to 6,861,388 kilograms; an increase of 1,548,464 kilograms.

Roubaix.—During the last quarter of the year 1889 the manufacture of fancy cloth was active and uninterrupted, and combed goods predominated. Black cloths were in greater demand than during previous years, and the manufacture of colored and government goods was restrained on account of the high price and scarcity of wool. The cloths for ladies' wear, and heavy cheviots were in great request.

Elbeuf.—The shipments from Elbeuf for the last quarter of the year 1889 were 1,197,671 kilograms. The entries were 292,213 kilograms. Net, 899,458 kilograms. During the corresponding quarter of 1888 the shipments were 1,079,871 kilograms. The entries, 205,935 kilograms. Net, 873,936 kilograms. Some heavy foreign orders were booked for fancy combed goods, and some fine and thin cloths.

At Rheims affairs are without any important change.

Fourmies.—At Fourmies spinners were obliged to make some concession to secure orders; on the other hand wool combers' prospects and prices have improved. There is no stock of yarn, and fabrics are firmly held.

Résumé of North France.—The following table shows the transactions of the five principal wool centers of northern France during the last quarter of the year 1889:

Places.	Combed wool.		Spun yarn.	
	1888.	1889.	1888.	1889.
Rheims	8, 187, 423	9, 845, 769	581, 975	580, 936
Roubaix	22, 165, 510	26, 661, 828	4, 142, 506	5, 262, 186
Tourcoing	17, 749, 638	18, 997, 410	2, 953, 368	3, 469, 480
Amiens	1, 115, 695	862, 532	869, 128	783, 062
Fourmies	2, 717, 929	2, 463, 562	2, 049, 023	4, 481, 749
Total	51, 886, 195	58, 291, 101	12, 596, 000	14, 577, 430

Mazamet.—(1889.) From the station of Mazamet there were shipped 59,343 kilograms of cloth, 795,530 kilograms of wool, and 435,095 kilograms of fleeces and hides. (1888.) The shipments during the corresponding quarter were 59,061 kilograms of cloth, 587,989 kilograms of wool, and 471,132 kilograms of fleeces. In December, 1889, the shipments consisted of 4,066,697 kilograms of fleeces, and 59,284 kilograms of wool; in 1888, 2,477,317 kilograms of fleeces, and 55,770 kilograms of wool.

Elbeuf.—During the month of January, 1890, the price for combed wool was from 4 to 5 per cent. lower; spun yarn from 3 to 4 per cent.; blouses from 5 to 10 centimes.

The manufacture of fancy goods for the summer season has been brisk throughout the month of January to make way for the manufacture of winter goods. The manufacture of plain cloths, and of colored and Government goods was restrained on account of the high price and scarcity of wool. Black cloth held its own. Sales in the month of January, 1890, amounted to 443,068 kilograms less the entries of 108,220 kilograms; net 344,848 kilograms. For the corresponding month in 1889 the sales were 454,412 kilograms, less the entries of 72,600 kilograms; net 381,812 kilograms.

There is a marked increase of entries of foreign goods which are shipped by some merchants as of Elbeuf manufacture. Wages are unchanged.

All France.—The importation of raw material shows a very strong progressive movement. For instance, the sales of wool in 1888 amounted to 341,254,000 francs; in 1889, 378,110,000 francs.

Silk improved by about 80,000,000 francs. The sales for 1889 amounted to 269,717,000 francs. In 1888 they amounted to 192,042,000 francs. In 1888 the sale of cotton came to 157,777,000 francs. In 1889 the sale amounted to 186,568,000 francs. The sale of jute in 1889 came to 23,055,000 francs while in 1888 it was not more than 19,038,000 francs. There was a falling off in the sale of both hemp and flax.

Among the manufactured goods there was an increase of entries of silk fabrics in France for 1889, but a decided falling off in threads, woolen and cotton tissues.

In the matter of exportation of raw material there was in wool, an increase; of this 131,000,000 of francs were sent out in 1888, and 154,000,000 in 1889.

In silk 117,000,000 of francs in 1888, and 133,000,000 in 1889. The falling off in the shipment of cotton amounted to 10,000,000; 34,000,000 in 1888, and only 24,000,000 in 1889.

Importation and exportation into and from France of raw material and manufactured goods from 1881 to 1889.

IMPORTATION.

Year.	Raw wool.	Spun wool.	Woolen fabrics.
	Francs.	*Francs.*	*Francs.*
1881	332,198,000	14,331,000	76,991,000
1882	811,176,000	15,476,000	84,261,000
1883	338,289,000	17,803,000	91,858,000
1884	339,398,000	17,353,000	88,799,000
1885	283,897,000	22,120,000	75,523,000
1886	395,373,000	15,960,000	79,821,000
1887	336,059,000	12,452,000	63,176,000
1888	341,254,000	14,086,000	65,176,000
1889	378,110,000	11,902,000	68,586,000

EXPORTATIONS.

1881	105,618,000	39,147,000	360,717,000
1882	95,360,000	38,856,000	401,982,000
1883	95,139,000	34,602,000	370,136,000
1884	95,909,000	32,291,000	334,294,000
1885	132,018,000	43,896,000	375,583,000
1886	90,833,000	35,605,000	330,094,000
1887	120,375,000	39,618,000	350,447,000
1888	131,509,000	37,160,000	328,375,000
1889	154,263,000	50,871,000	335,686,000

Exports of all textiles and thread from France.

Articles.	1889.	1888.
	Francs.	*Francs.*
Woolen fabrics	335,686,000	323,375,000
Silk fabrics	247,880,000	223,171,000
Cotton fabrics	113,905,000	106,183,000
Flax fabrics	9,398,000	8,292,000
Jute fabrics	4,736,000	3,859,000
Woolen yarn	50,871,000	37,160,000
Cotton thread	8,074,000	2,661,000
Linen thread	11,240,000	9,846,000
Total	776,790,000	714,547,000

LONDON SALES OF WOOL.

The London sales of wool, which have now entered upon their third week, have shown symptoms of strength in the prices obtained, especially for wool adapted to combing. The sales of 10,000 bales per day does not seem to have diminished the ardor of buyers, who, however, scrutinize very closely the quality of their purchases when paying the highest prices. Australian lamb's wool, at first sparingly offered, is now in better supply. Defective wool, containing burrs, requiring to be charred, is in demand for carding, and brings almost as much as at the December sales. There is a great competition among buyers for Cape of Good Hope, for combing; America, France, and England outbid one another for such brands as the NC., the EO., the Travailla, the Wands Dale, etc. These brands are satisfactory as regards their returns, if not up to the mark of fineness. The Adelaide, the condition of which is far from desirable, is neglected. Sellers offer it under various disguises, such as Sydney and Melbourne, but buyers readily detect the subterfuge. The purchasers are in the interest of the English consumers for 42 per cent. and 58 per cent. for export. The United States are buying the usual amount, and France is a considerable purchaser. Russian buyers have shown recently more interest. Up to this time 120,792 bales have been offered, of which 103,916 bales have been sold and 16,876 bales withdrawn. In the twelve catalogues of the third week I find 68,000 of Australian and 6,000 bales of Cape of Good Hope. The importations of wool from La Plata and Australia by the port of Dunkirk enables the manufacturers of Roubaix, Tourcoing, and the North to save from 3 to 5 per cent. in commissions. There is a great activity in this trade at the present time in view of the probability of imposition of duty on wool. In this connection it might be said that the same cause affects the arrival of Indian corn at this port, at which no less than ten vessels are now discharging or awaiting their turn to discharge their cargoes of that article. Many of these come directly from New Orleans.

SALES OF INDIAN WOOL.

The next sales of Indian wool begin on the 18th of March, 1890. The arrivals since the last sale are 4,480 bales, the amount held over by importers 2,800 bales, stock in second hands about 4,500 bales; total, 11,760 bales. The market for English wool is quiet, and manufacturers obtain some concessions from sellers.

TARIFF AND WOOL CONSUMPTION QUESTION.

The question of tariff modifications is forced upon the consideration of the Chamber of Deputies in a manner which embarrasses its members very much. The agriculturists insist upon protection in the matter of Indian corn and wool, the former of which is largely employed for distillation, and as whisky is unknown here, it must be used for brandy.

The agriculturists and landed proprietors are unanimous in their demand to reach wool with a tariff on entering France. It would not come within the scope of this article to enter fully upon the arguments pro and con brought forward by both parties. As it is by no means probable that the commercial treaties, which expire in 1892, will be renewed, these questions are of vital importance.

The agriculturists say that they must live as well as the manufacturers; that their interests have been neglected, while those of the manufacturers have been protected; that whenever a change is contemplated they are omitted but not outnumbered by the manufacturers, who plead their cause most valiantly, while their agricultural societies are not united and exert but little influence. They maintain that agriculture is the main-stay of France; that it furnishes the most soldiers to the army, is the resource of the budget, and they hint gently that it furnishes the most voters, and is therefore worthy of especial consideration.

The agriculturists say that what the manufacturers call raw material, wool, is the manufacture of the farmer. The duty of 15 centimes per kilogram would not affect materially the manufacturer, and besides they have their drawback.

The manufacturers contend that without disparaging the great agricultural interest they must consider that the export trade brings much foreign money into the country; that the woolen exports exceed by 100,000,000 of francs the exports of wine and silk combined; and taking fabrics, yarns, and wool, that the total annual export trade amounts to 450,000,000; that the refuse grains of the distiller contribute largely to the product of the dairy, and even go so far as to say that they can be utilized as food for cavalry horses.

The strong argument of the manufacturers is that French wool is particularly valuable when mixed with certain foreign wools, and that the extension of manufactures has increased the price of wool since 1884. The advantages arising from a drawback on exported woolen fabrics are urged by the agriculturists, while the manufacturers contend that the dispute in regard to the wool contained in a fabric, and especially in fabrics where cotton and silk enter, will constantly and unavoidably arise with the authorities of the custom-house, and can not be satisfactorily adjusted even by experts.

The woolen industry of France requires 10,000,000 of Australian fleeces, 50,000,000 of La Plata, and 1,000,000 of Russia, in all about 61,000,000 fleeces. This wool consists of 90 per cent. of merinoes and 10 per cent. ordinary and common. The fine wool of France is the merino, which is particularly the object of protection. The annual production of France is 22,000.000 fleeces. Thus they argue that, to protect 5,000,000 of native fleeces, a tax is put upon 61,000,000 of foreign fleeces.

The detail of the amount of duty demanded has not yet been agreed upon, but not less than 30 centimes (10 cents) in the kilogram (2.15

pounds) has been proposed. The French wool is adapted only to certain uses. Difficult to spin, dry to the touch, hard to bleach on account of the yellow tint which remains after washing; these are some of the defects. On the other hand it is vigorous, bears handling well, and is excellent for dyeing. It gives strength to the Australian wool, which in turn gives softness when they are mixed. The changing fashions sometimes give more or less value to the French than to the Australian wool. It appears that the specialty of the French woolen manufacture is in fine wools, of which a large amount is supplied to England in combed wools. The English manufacturers are not equipped for this work, and purchase abroad their supply. Holland, Belgium, and more particularly Germany compete with France for this trade.

Questions proposed by the minister of commerce to the different chambers of commerce throughout France have elicited replies showing the state of feeling in the business community upon the tariff question. The following are abstracts from some of the answers given by the chamber of commerce at Elbeuf.

Question. Is it well to cancel existing treaties? If they are denounced, what can be substituted for them?

The chamber of commerce replies:

(1) We think it advisable to discontinue the existing treaties after the term of their expiration, and to replace them by a general tariff which should be both remunerative and protective.

(2) We should not forget that every advantage given to another country benefits Germany by virtue of article 11 of the treaty of Frankfort. After the war, under the protection of these privileges, Germany made great strides and built up a large manufacturing interest. She has become our most formidable rival; we must therefore arm ourselves against her. This is the simple reason why we cannot make any treaty, but merely hold to a general tariff.

(3) The Government must fully control its freedom of action, untrammeled by any treaty, and be prepared to come to the rescue of any industry requiring its protection. We consider it advisable to establish a minimum tariff with countries which would accord to us certain advantages. This minimum tariff should be increased in regard to other countries according to the general requirements of each industry.

Then comes the question: Do you ask for a modification of the general tariff of duties in regard to the duties themselves or their classification.

Reply: (1) We ask that the rates may be raised, and the general tariff modified, in the manner adopted by the United States, which would enable us to arrive at a more correct valuation, using for this purpose the specific tariff and tariff ad valorem. The chamber of commerce of Elbeuf and the other chambers interested in the same industry recommended, in 1881, the establishment of four categories to attain the desired result. This advice was not acted upon by the superior council, which adopted three categories, but as had been foreseen by the president of the chamber of commerce at Elbeuf, this system led to irregularities in the collection. Two fabrics of the same weight and size can have different values according to quality, and therefore we ask for an addition of the tariff ad valorem to that of a specific duty, which must be the basis of our customs duties. We therefore propose the classification in these categories as it is defined in the general tariff, and the conventional tariff, but with an addition of the ad valorem duties. The tariff which we ask for is that which was first adopted by the superior council and really amounts to about 10 per cent. This tariff should be amended by the addition of an ad valorem duty of 15 per cent. The duties would be—

	Specific duty.	Ad valorem.
	Francs.	*Per cent.*
Up to 400 grams, to the square meter	1.70	15
From 401 to 550 grams, to the square meter	1.50	15
Above 550 grams, to the square meter	1.30	15

For the nations who do not grant us any privileges, the specific duty would be the same, and the ad valorem duty would be increased to 30 per cent.

(2) Duties upon machines are insufficient. An ad valorem duty should be added to the specific duty. It is not just to charge small and delicate machines by weight as mere metal or castings, when the same are skillfully manufactured. We therefore advise taxing specifically according to the weight of the metal contained in the machine, and an ad valorem duty in addition of 15 per cent., based on the market value of the machine.

(3) The spinning industry suffers from competition with Belgium, which can manufacture at a lower rate than we can. We therefore ask that the tariff upon yarn may be doubled.

Then follow their opinions upon proposed tariff upon wool, which does not materially differ from arguments above mentioned.

The raising of sheep for the butchery diminishes the value of the fleece. Wool has risen and fallen, and during these periods has been in advance of any price which the farmer can hope for from protective tariff. The sales of wool for future delivery on change are attracting attention. The usual arguments which would apply to any other mode of gambling are brought to bear to prevent its suppression. During the two years of these sales they have numbered many victims, and an increased tendency to gambling has been developed.

The agricultural interest, combined as it is, must in my opinion prevail over the woolen manufacturers. The rivalry between the European nations places the manufacturer in a critical condition, and any addition to cost of raw material and labor jeopardizes his situation. Whichever way the matter is decided it will not materially affect American interests, for if we cannot buy as well from the French we will seek our woolen goods elsewhere, for, as a nation, we seem to be determined to purchase rather than to manufacture them.

CHARLES P. WILLIAMS,
Consul.

UNITED STATES CONSULATE,
Rouen, *France*, 1890.

ITALY IN 1889.*

REPORT BY CONSUL-GENERAL BOURN, OF ROME.

AGRICULTURE.

Italy is essentially an agricultural country. Nearly 69 per cent. of the population are agriculturists. Of the remaining 31 per cent. those engaged in manufactures work largely by hand and in their own homes, so that the advantages possessed by the United States in the use of labor-saving machinery do not prevail here, and there is consequently a much smaller surplus from the results of labor to add to the wealth of the nation. The welfare of the various classes is not promoted as it would be were its industries more varied, for it will be noticed that the prosperity of civilized nations depends upon the variety of their industries, and that they are rich and prosperous just in the proportion that their industries are diversified.

During the year Italy has suffered from a severe financial crisis, and not only from a short crop, but from the effects of continued short crops for the four years preceding. It has also continued to suffer from the abrogation of the commercial treaty with France, having thereby lost its best customer for its agricultural products. The crops for the year 1888 were not over 74 per cent. of the average crops for the years 1879-'83 which have been taken by the Agricultural Department as the standard, and for the years 1884-88 not over 79 per cent. of the average. The nation has severely felt this deficiency, but the hopeful feeling now prevailing that the coming year is to be one of peace and prosperity goes far towards reconciling for the past.

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*This report discusses the commercial and industrial conditions of Italy by consular districts—the condition of the working classes in the several districts occupying a large portion thereof. The consul-general says:

For reports upon the various consular districts (except Castellamare) I am indebted to the courtesy of our consuls at their respective posts: Mr. Touhay, Turin (Piedmont); Mr. Crouch, Milan; Mr. Fletcher, Genoa; Mr. Rice, Leghorn; Mr. Diller, Florence; Mr. Johnson, Venice; Mr. Camphausen, Naples; Mr. Lamantia, Catania; Mr. Jones, Messina; Mr. Carroll, Palermo; and to our consular agents at Civita Vecchia, Ancona, and Cagliari, viz, Messrs. Marsanick, Tomassini, and Dol.

POPULATION.

The population of Italy has slightly increased during the year, the losses by emigration having been much more than made up by the excess of births over deaths.

TRADE.

Trade with other nations has upon the whole declined, the imports 1888–'89 being about $86,500,000, less than for 1887–'88 and the exports being about $27,000,000 less. The statistical bureau of the Government classifies trade with the United States and Canada under the same head. There is, therefore, no means of separating the statistics of Italian commerce with these nations. Trade between them and Italy has increased during the past five years, both as to imports and exports. During that period the imports from them into Italy increased from $11,600,000 in 1884 to about $15,000,000 in 1888, according to Italian official returns. Trade between Italy and the United States, especially in groceries, cotton goods, petroleum, and the many products of our labor-saving machinery could be largely increased if proper means were employed for bringing them to the notice of the merchants and people Italians are generally ready to buy where they can buy the cheapest, or to buy better goods at the same prices, but their trade has been for so many years through other channels that our merchants must familiarize themselves with the prevailing customs of trade before they can expect to divert it from its accustomed channels, even if they can offer, as no doubt can be done, better goods for the same prices.

FINANCES.

The receipts of the Government for the year were less than those of the preceding year by upwards of $13,500,000, and at the same time the expenditures were upwards of $19,900,000 in excess. The deficit at the end of the year was about $44,500,000. The year ending June 30, 1888, also showed a deficit, but the three preceding years showed a surplus. The result of the five years ending June 30, 1889, is as follows:

1884–'85 (surplus)	$6,800,000
1885–'86 (surplus)	2,900,000
1886–'87 (surplus)	2,250,000
1887–'88 (deficit)	11,300,000
1888–'89 (deficit)	44,500,000

The chief sources of revenue are rents, income and land taxes, taxes on business, customs, octroi duties, the tobacco and salt monopoly, and the state lottery. The requirements of the Government compel the laying of customs duties and also internal taxes with a view to producing the largest amount of revenue.

CUSTOMS RETURNS.

The details of the customs for 1888-'89 are not yet accessible, but for the year preceding they produced the sum of about $36,400,000, chiefly on the following articles:

	Value of imports.	Duties.
	Lire.	*Lire.*
Petroleum	15, 369, 486	32, 847, 368
Coffee	29, 457, 420	19, 665, 360
Sugar	14, 603, 265	30, 881, 420
Cotton goods, threads, etc	134, 203, 303	11, 868, 374
Wool, raw	22, 321, 010	Free.
Wool, manufactured	56, 055. 421	10, 115, 965
Silk, raw	46, 102, 546	Free.
Silk, manufactured	30, 495, 871	3, 153, 203
Metals and minerals	174, 877, 252	25, 603, 825
Wheat	147, 353, 580	29, 785, 975
Other breadstuffs	36, 744, 193	2, 956, 665

It will thus be seen that duties are levied on articles of prime necessity and universal consumption, which, as is usually considered, bears the hardest on those who can least afford to pay them.

The amounts received from customs have varied greatly the past few years, viz:

	Lire.
1883-'84	163,352,602.
1884-'85	219,337,237.
1885-'86	158,770,032.
1886-'87	250,338,202.
1887-'88	188,534,502.

The customs revenue on breadstuffs has steadily increased during the past five years, thus showing a steady increase of imports to compensate for the deficiency of home crops, as well as that Italy is becoming more and more dependent on other nations for her food supply.

CROPS.

The relative percentage of the principal crops for the years 1887 and 1888 to the standard average may be seen by the following table:

	1887.	1888.		1887.	1888.
	Per cent.	*Per cent.*		*Per cent.*	*Per cent.*
Wheat	90. 32	73. 78	Oil	47. 27	75. 11
Corn	88. 45	76. 94	Oranges, etc	89. 11	89. 58
Rice	90 86	58. 15	Potatoes	78. 29	70. 98
Wine	93. 60	88. 84	Oats	88. 52	74. 96

MINING.

The total value of mining products for the year 1887 was $9,650,000, to produce which 47,063 persons were employed. The chief mining industry is the production of sulphur, which gave employment to 26,871 persons, with an annual product of $4,570,000. Gold and silver to the value of $532,500 were produced, also lead and zinc to the value of $2,550,000. Most of the coal consumed in Italy is brought from England and Germany, the production of the Italian mines having been only 327,665 tons.

RAILROADS.

The railroads in Italy are in good order and well managed, but the development of the nation is sadly hindered by the high rates charged for the transportation of freight and by the excessive time required. The following table of distances with the prices charged, and the time required for freight and express matter from Rome will convey a general idea of the cost of transportation in Italy and of the time required on the lines of railroad:

From Rome to—	Miles.	Freight.		Express.	
		Time.	Rate.	Time.	Rate.
		Days.	*Per* 100 *lbs.*	*Days.*	*Per* 100 *lbs.*
Naples	162	5	$0.87	2	$1.96
Leghorn	220	7	1.02	2	2.42
Florence	195	6	.96	2	2.28
Venice	380	12	1.78	3	3.47
Milan	406	12	1.81	3	3.60
Turin	416	12	1.84	3	3.65

But in those parts of Italy where there are no railroads there seems to be an almost total lack of organized means of transportation of merchandise, so much so that in some sections the expense is so great as to be prohibitory. The table given later, of the variation in the prices of the necessaries of life in different places, will illustrate the lack of adequate means of distribution more strikingly than any comments.

For the purpose of comparing the cost of railroad passenger travel with the cost in the United States, I will add a list showing the expense from Rome to the chief cities of Italy by each class.

From Rome to—	Miles.	First class.	Second class.	Third class.	Time.
					h. m.
Naples	162	$6.24	$4.37	$2.56	5 43
Florence	195	7.58	5.27	3.07	6 00
Leghorn	220	8.41	5.90	3.47	7 21
Venice	380	14.61	10.23	5.98	15 10
Milan	406	15.96	11.17	6.53	13 35
Turin	416	15.98	11.18	6.61	14 43

The time given is for the express trains, and the fares of first and second class passengers for the same trains. These trains do not carry third class passengers, which are carried only by the slower accommodation trains. In addition to the railway fares a government tax of 5 centimes, or about 1 cent is collected on each ticket sold.

POSTAL PACKAGES.

The system of postal packages prevailing in Italy as well as with the various countries of Europe compensates to some extent for the cost and delays of sending by freight or express. Ordinary packages not exceeding 3 kilograms in weight (6.614 pounds) are carried to any part of Italy for 50 centimes (say 10 cents), with additional charge of 25 centimes (say 5 cents) for delivery at domicil; carriage by sea, or collections of charges (C. O. D.).

PROVISIONS.

By examining the following tables of the average cost of provisions in 1887 in various Italian towns, compiled from the official statements, it will be seen that there is so great a variation in prices that one can only account for it upon the theory that there is a lack of proper means of distribution.

Towns.	Wheat.*	Corn.*	Rice.*	Wine.†	Oil.†	Beef.‡
Avellino	$3.86			$4.38		
Bari	4.83			6.67		
Cagliari				6.47		
Carmagnola	4.24	$2.75				$0.20½
Catania				3.02	$13.13	
Ferrara			$8.83			
Florence	4.84	3.03		9.09		.37½
Cremona		2.51				
Genoa	4.57	2.88		8.80	20.94	
Lecca					14.17	
Lucca					30.83	
Messina		3.12				
Milan	4.49	2.70	6.84	14.59	34.43	.27
Naples	5.00	2.76				.34¼
Padua	4.16					.26
Palermo						.47
Parma	4.35	2.72				
Porto Maurizio					19.52	
Leghorn	4.74	2.95				
Rome	4.43			8.85	18.30	.35½
Udine	4.13	3.22				
Vercelli	4.05	2.65	6.02			
Verona	4.29	2.74	7.56			

* Per quintal of 226.46 pounds. † Per 26.4 gallons. ‡ Per kilogram of 2.2 pounds.

MANUFACTURES.

The statistics of manufactures in Italy have never been published in a form that would give a fair exhibit of the amount of production or the number of hands employed. The manufactures generally are in a healthy condition, and while they seem to be on a scale entirely too small for the needs of the country, judged by our own experience, yet they are supplemented to an immense extent by hand industries which are carried on extensively in every part of the Kingdom.

FOOD PRICES.

The condition of the laboring and agricultural classes, whatever it may be by comparison with our own or other countries, has been gradually improving during the past twenty-five years. The prices of provisions have steadily declined during that period, except meats which have advanced in price. But as meat forms an insignificant portion of the living of the Italian laborer, its advance in price brings no hardship to him. The following table, compiled from official reports, will give the prices of the chief necessaries of life at periods of five years since 1862.

	1862.	1867.	1872.	1877.	1882.	1887.
Wheat (per 220.46 pounds):						
First quality	$5.70	$6.28	$6.71	$6.79	$5.22	$4.40
Second quality	5.31	5.78	5.94	6.49	4.91	4.15
Corn (per 220.46 pounds):						
First quality	3.97	4.29	4.78	4.39	4.09	2.78
Second quality	3.63	3.93	4.41	4.04	3.74	2.54
Rice (first quality per 220.46 pounds):						
At Vercelli	6.17	7.07	7.27	7.82	5.92	6.02
At Milan	6.28	7.34	7.64	8.19	6.57	6.34
Table wine (first quality per 26.42 gallons):						
At Milan	11.48	13.12	8.06	15.34	11.37	14.59
At Florence	10.83	12.43	12.31	11.43	8.84	9.09
At Rome	10.55	7.48	6.47	14.31	10.56	8.85
At Cuglieri	10.61	8.85	7.23	8.68	9.31	6.37
Olive-oil (first quality per 26.42 gallons):						
At Milan	41.09	42.07	43.91	39.91	35.20	34.43
At Lucca	24.14	35.31	25.84	29.97	26.09	30.82
At Rome	23.54	26.07	21.42	23.02	19.25	18.30
At Catania	....	......	20.22	19.09	13.82	13.14
Beef (per 2.2 pounds):	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*
At Milan	20.45	22.49	25.67	28.95	26.05	27.02
At Padua	22.58	22.97	21.81	31.07	30.11	26.06
At Florence	24.13	27.98	23.16	33.	40.53	37.64
At Rome	24.70	23.35	22.20	29.53	38.80	35.13
At Naples	25.28	26.63	30.30	36.28	38.60	34.74
At Palermo	....	....	....	56.16	54.04	47.09

The wages of labor have during the same period been steadily advanced as can be seen from the following tables, also compiled from official sources.

LABOR AND WAGES.

The daily wages paid in three different cotton and woolen mills at periods of five years, beginning with 1862, form the basis of the tables.

[Per day of ten hours.]

	1862.	1867.	1872.	1877.	1882.	1887.
First mill (cotton).						
Spinning:	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*
Men	21.4	27.	32.8	32	34	39.5
Women	9.7	13.5	12.5	16.7	20.3	22.6
Weaving:						
Men	26	32.8	35.7	43.6	46.3	53.7
Women	12.5	13.5	15.4	18.1	22.4	22.6
Second mill (cotton).						
Spinning:						
Men (highest)	48.2	57.9	61.8	67.6	67.6	67.6
Men (lowest)	27	34.7	38.6	38.6	38.6	38.6
Women (highest)	16.6	19.3	19.3	19.3	19.3	23.2
Women (lowest	9.7	11.6	12.5	14.5	15.4	17.4
Weaving:						
Men (highest)	44.4	57.9	57.9	57.9	61.8	67.6
Men (lowest)	29.7	38.6	38.6	38.6	38.6	38.6
Women (highest)	15.1	23.2	23.2	23.2	23.2	23.2
Women (lowest)	7.7	11.4	15.4	15.4	17.4	17.4
Woolen mill.						
Washers (men, by the job)	57.9	57.9	57.9	60.8	60.8	61
Dyers (men, by the day)	25.1	25.1	29	32.4	40.5	41.5
Carders (men, by the day)	29	29	29	35.7	40.5	43.4
Spinners (men, by the job)	55.2	61.6	66.8	72.8	72.8	77.2
Twisters (women, by the day)	13.5	14.5	15.4	16.4	28.4	28.6
Weavers (men, by the job)	45.2	49.2	47.7	56.9	....	....
Weavers (women, by the job)	....	....	20.5	34.5	38.6	43.4

Examples of the appreciation of labor might be multiplied almost indefinitely, but those given, with the examples of the decline in prices of provisions show plainly that the condition of the laborer in Italy has been gradually improving during the past twenty-five years. A day's work will procure more of the necessaries of life now than at any time during that period. This progress may be strikingly exemplified by the following table, showing the average wages per day of ten hours in seven large textile establishments, the average price of wheat per quintal of 220.46 pounds and the hours of labor required to purchase one quintal of wheat:

Year.	Average wages.	Average cost of a quintal of wheat.	Hours of labor required to buy a quintal of wheat.
	Cents.		
1862	28.2	$5.50	195
1867	29.7	6.02	203
1872	34.2	6.32	185
1877	40	6.64	166
1882	43.6	5.06	116
1887	45.9	4.27	93

With the improvement in the condition of laborers we would expect to see evidences of the improvement of the nation as a whole during the same period. In Italy, as everywhere, there have been seasons of prosperity and seasons of adversity, and at times, by merely considering the present, one might, as has always been the case in the world's history, sigh for the good times of old. But if, in addition to the proofs adduced of the improvement in the condition of laborers, we consider the great increase in commerce and consumption it indicates forcibly the steady advances in wealth made by the nation.

FOREIGN COMMERCE.

Imports.—The following tables show the steady increase in importation of a few leading articles and also in the total amount of commerce.

Articles.	1867.	1872.	1877.	1882.	1887.
Raw cotton .... quintals*	98, 945	200, 230	241, 672	628, 806	761, 907
Raw wool .... do	67, 014	59, 742	82, 437	75, 084	112, 284
Machinery .... do	72, 468	132, 985	151, 623	320, 245	439, 036
Coal .... tons	515, 943	1, 037, 409	1, 329, 549	2, 180, 020	3, 583, 143

* Of 220.46 pounds.

Arrivals and departures of vessels and tonnage.

Year.	Number.	Tonnage.
1868	263, 759	20, 425, 207
1873	274, 490	23, 972, 238
1878	229, 796	28, 198, 095
1883	262, 501	39, 581, 075
1888	222, 160	40, 133, 567

THE FRANCHISE.

There are two classes of electors in Italy—those who vote for communal and provincial counsellors and those who vote for deputies in the Parliament. By the law of March 20, 1865, all citizens of twenty-one and upwards who contribute annually to the communes sums varying from 5 lire (96.5 cents) in those having 3,000 inhabitants to 25 lire ($4.825) in those having 60,000 or more, are entitled to vote for provincial and communal counsellors upon being duly registered. In 1871 the number thus entitled to vote was 1,293,343 and in 1887, 2,026,619; an increase of about 57 per cent. In 1871, 473,068 voted and in 1887, 803,050.

PARLIAMENT.

By the law of September 24, 1882, the privileges of electors for deputies in the Parliament were extended to all male citizens of twenty-one years and upwards who know how to read and write and who pay a direct tax of any description of 19.80 lire ($3.80) in addition to any communal tax, or who have completed the second elementary course of instruction, or who can show that they have received other instruction equivalent to that course, or who have borne arms for two years and attended the regimental school with proficiency, or who hold or have held certain positions.

For the purpose of electing members of the Parliament, Italy is divided into 135 districts, having a total of 508 members. Each district is entitled to one, two, three, four, or five members according to the population. In the districts entitled to five members, each elector can vote for four members only, thus securing a minority representation in the larger districts.

The number of electors has increased rapidly since the unification of Italy, as may be seen by the following table, which also shows the number voting at the various general elections:

	No. of electors.	No. voting.		No. of electors.	No. voting.
1870	530,018	240,974	1879	621,896	369,624
1874	571,939	318,517	1882	2,049,461	1,223,851
1876	605,007	358,258	1885	2,420,327	1,415,801

REAL ESTATE.

With the accession of King Humbert, Italy entered upon a period of national life. A struggle for the unity and the consolidation of national existence had characterized the reign of Victor Emanuel, but now began the time for the development of the country's resources and financial well-being, and so it came about that with constantly increasing resources real estate in both city and country advanced in value and an impulse was given to building in many of the cities, towns, and villages. The result of the extensive building has been that a building crisis has been brought about which has been severely felt at Rome, where building has been most active and speculation in real estate great.

During the year Italy has been afflicted by a building crisis, an agricultural crisis, and a financial crisis, each of which has borne a relation more or less intimate with the other.

WINE INDUSTRY.

The agricultural difficulties are chiefly attributed to short crops during several years and heavy imports of grain which have competed with and discouraged home production, as well as by the failure to conclude a new commercial treaty with France, which caused a suspension of the special tariffs with that country March 1, 1888.

The wine industry was especially affected in Sicily, South Italy, and Apulia, where wine is the most important product. For a series of years growers have been constantly increasing their production and France was their chief customer. Therefore when the new relation with that country began, Italy's principal market for wine was closed as well as that for various other agricultural products such as raw silk, live stock, dairy products, eggs, etc. For not only was the commercial treaty allowed to expire, but each country imposed differential duties on the products of the other. The crisis became most serious and extended to and affected all parts of the country. All interests were affected. Things have not yet returned to their normal condition though there is a great improvement, and the out-look appears better.

DEFICIT.

The Government deficit of $44,400,000 at the end of June, 1889, was chiefly owing to extraordinary expenditures for the army and navy, authorized by the law of December 30, 1888. To reduce this deficit the Government has somewhat reduced expenses, and is using greater energy in caring for the collection of taxes, and has abandoned the construction of some railway improvements. Expenditures have steadily increased year by year but for the year ending June 30, 1890, no increase has been authorized, nor have new taxes been imposed. The deficit continues, but according to the estimates of the Minister of the Treasury it is expected to be reduced to $10,900,000 on June 30, 1890, and to disappear entirely by the end of the succeeding year. This it is proposed to bring about by reducing the expenditures, and through anticipated increased receipts, and also by the sale of 5 per cent. bonds representing $6,330,000.

EXPORTS.

The exports for the year from Italy to the United States have been $20,297,447.63, according to the quarterly reports of the various United States consulates, condensed from the consular invoices. There are no statistics in this office by which a comparison can be made with similar reports of previous years. It will be noticed, however, that the amount is largely in excess of that reported by the Italian Government for the United States and Canada.

Statement showing the declared exports between Italy and the United States for the year ended June 30, 1889.

Almonds	$136,144.51
Antiquities	10,062.77
Argols	1,477,983.32
Alabaster	87,363.78
Asphaltum	14,317.85
Anchovies	518.63
Brimstone and sulphur	2,187,824.66
Beans	10,118.53
Bones and fish-bones	9,954.40
Bronzes	5,952.13
Books	5,131.52
Boracic acid	27,774.78
Bees-wax	1,454.64
Briar wood	11,908.60
Brandy	354.97
Cheese	180,059.06
Canary seed	16,336.81
Chestnuts	9,356.85
Chestnuts, extract of	5,591.33
Chinaware	2,050.32
Citrons, candied	130,565.70
Cattle, hair of	264.32
Chalk	154.42
Cloths, ornamental	2,090.00
Chemical preparations	61,925.85
Coins, antique	1,092.95
Carpets and rugs	291.78
Essences	230,622.23
Earthenware	851.74
Eggs	2,077.73
Furniture and frames	24,612.44
Fruit:	
Green	428,749.12
Candied or preserved	15,872.20
Dry	15,017.53
Fancy goods	2,860.10
Filigree	6,279.10
Fish, salted and under oil	1,305.84
Filberts	149,619.00
Figs	2,922.00
Garlic	11,357.91
Gun-stocks	2,306.87
Glassware	14,892.00
Glycerine	125,424.15
Gloves	208,200.90
Gum Arabic	48,834.94
Groceries	582.85
Hair, human	11,410.23
Hides and skins	48,009.70
Hemp	141,050.29
Hemp, tow	2,011.08
Household and personal effects	10,976.93
Hazel nuts	6,512.26
Iron work	2,354.00
Iron ore	154,222.05
Juniper berries	8,447.85
Jewelry	1,598.27
Lamps, electric	10.65
Lace	1,268.00
Licorice root	970.62
Licorice	38,468.71
Linen yarn	83,687.55
Liquors	13,150.28
Laurel leaves	176.07
Laurel berries	751.52
Lemons and oranges	5,067,293.39
Lemon-juice (concentrated)	83,153.00
Marble:	
Statuary	144,331.72
Wrought	23,150.47
Marble—Continued.	
Blocks	387,893.91
Slabs	117,795.46
Tiles	1,074.17
Mosaics	6,900.72
Macaroni	345,932.02
Majolica	1,312.00
Matches	7,269.55
Military equipments	1,477.41
Musical instruments	1,782.85
Medicinals	920.39
Mushrooms	2,579.51
Mustard seed	7,670.74
Manna	9,400.46
Marsala wine	1,606.01
Marine salt	22,497.78
Olive oil	478,628.89
Olives	349.61
Orris root	9,743.85
Paintings	87,447.56
Plaster casts	24,777.06
Passementeries	528.82
Plumbago	965.82
Photographs	606.00
Plants, green	136.00
Pumice-stone and bricks	60,592.86
Pease	17,020.50
Pistachio-nuts	4,222.00
Religious devotion, articles of	4,834.67
Rice	10,572.24
Rags	234,910.06
Raisins	2,832.52
Sumac	352,228.25
Silk:	
Raw	4,436,690.80
Manufactured	250,244.25
Tussah	5,537.56
Waste	89,262.26
Soap	148,560.37
Soap, stock	79,343.20
Squills	679.00
Seeds	55,818.01
Sulphur oil	5,951.12
Straw goods	768,552.72
Sausages	4,629.57
Sienna earth	15,512.15
Sweets	17.60
Shell-work	20.00
Terra cotta	180.96
Talc	8,423.36
Textiles, woolen	1,077.13
Tiles, cement	1,787.00
Tomatoes	764.00
Umber earth	9,207.47
Velvet	1,415.10
Ventricles, calves	51.20
Vermouth, wine	104,322.14
Violin strings	1,147.00
Wine	58,178.40
Walnuts	98,131.84
Wool	27.72
Works of art	8,393.75
Waste, cotton and rags	165,024.62
Wine lees	64,484.00
Sundries	230,456.02
Total	$20,297,447.68

THE CONSULAR DISTRICT OF ROME.

The consular district of Rome comprises substantially the province of Rome, Umbria, The Marches, and Abruzzi. It extends from the Mediterranean to the Adriatic. The city of Rome in a commercial point of view has but little interest to our citizens. Being an inland city, and not a point of distribution for Italian manufactures, either for the rest of the kingdom or for foreign countries, its direct trade with the United States is somewhat limited. But as the capital of the new Italy, as the inheritor of the monuments and traditions of the greater Rome of the past, as the resort of many thousands of our citizens every winter, it may perhaps have as great interest for us as many other cities with which we have important commercial relations.

The consular district is essentially an agricultural country; the city is devoted to art and the tens of thousands of visitors from every quarter of the globe. The province of Rome includes within its limits a great variety of soil and climate. It includes an immense tract of marches with their noxious exhalations, the drear Campagna, once the abode of large and prosperous communities, and perhaps the greatest diversity in the nature and fertility of its soil of any section of Italy. The climate is dry and warm, and snow and frost are not common. The prevailing winds are the tramontana from the north and the sirocco from the south. The country is well watered, but instead of contributing to its fertility the water-courses have been allowed to become the source of fevers and malaria. The land is held both in large tracts of many thousands of acres, and in minute subdivisions held by a number of families in common. It is sparsely settled. In the Campagna there averages but one house to every 4 square miles.

Vines and olives are the most important products, but great attention has been paid to cattle and horse-breeding, which bids fair to become the most important industry. Corn and wheat are also largely produced. But the cultivation of the soil can not compare with former times when olive trees and vineyards reached down to the shores that are now uncultivated and uninhabitable. The silk industry is carried on to a very small extent. Cheese of sheep, goats, and buffaloes is produced in large quantities. Wool is an important production; in fact, it constitutes one of the principal sources of wealth in the province. The greater part of the land is given up to pasturage, not only of sheep, but of horses and cattle. The quality of the wool is not so fine as the Spanish wool but it is whiter, brighter, and contains but little oil. It is a combing wool, and produces cloths of excellent quality and durability. It has, however, materially declined in price, and is said to be worth not more than half its former price. There is no customs duty on raw or washed wools.

The lack of capital is a great drawback to the farmers. Among the mountains money is so scarce that trade is quite generally a barter trade. Away from the line of railways, transportation is so expensive that in many cases it would exceed the value of the goods.

The wages of the agricultural laborers are very low, and not much more than $1 a week for steady employment, and from 10 cents to $1 per day for temporary employment. The chief articles of their food are corn, vegetables, and cheese.

The reclamation of the Agro Romano by means of drainage and irrigation is a most important undertaking. In the Campagna there are said to be upwards of 500,000 acres of uncultivable land that was once the seat of flourishing cities and covered with olive groves and vineyards. Since 1878 measures have been taken for the gradual reclamation of about 125 square miles of the Campagna around the city of Rome. In Umbria the soil is generally poor, and the surface mountainous. The inhabitants are generally devoted to agriculture. Their morality, manners, and customs are good, their wages small, and their health good. Their food consists chiefly of corn and cheap wine. They generally have but two meals, one at 9 in the morning and the other at night. The population is among the best in Italy, and at least two-thirds of their number are engaged in agriculture. In the marches probably 40 per cent. of the population are agriculturists. The soil is fertile and the climate healthy. Women work, as in many other parts of Europe, at the same occupation as men—as farmers, as assistants to masons, or wherever they can gain a livelihood. The peasants are frugal, as they must needs be with their small earnings, which are sometimes no more than a few cents per day. Large numbers of cattle and sheep are raised. One man is said to own 3,000 cattle and 6,000 sheep. But the tax of 50 cents per head per annum on sheep must be a terrible burden to the farmer. Perhaps 30 per cent, 6,850,000 acres, of the cultivated ground is in vines, 675,000 acres in wheat, and 75,000 acres in beans. The oil is said to be of excellent quality but the quantity is small. But little attention is paid to the silk industry.

In the Abruzzi the staple products are wine, wool, and cheese. Wool is produced in large quantities, but, as elsewhere, the prices are extremely low. The sea-coast is fringed with extensive marshes, which extend inland on an average for 20 miles. The people are mild, laborious, and respectful, but are somewhat indifferent to their natural rights, and especially to the exercise of the electoral franchise. Bread is the chief article of diet, meat being almost unknown. The houses of the peasants are small, dark, and smoky. The people dress well, and their general condition is good. Though largely an agricultural country, there is not enough wheat and corn raised for their support.

THE CITY OF ROME.

Population.—The population of the city on the 30th of June, 1889, was estimated to be 404,489, having increased during the year ending on that day 13,261. The average increase in population since Rome became the capital of Italy has been about 10,000 annually. It is probable, however, that owing to the financial difficulties of the past year, and the consequent check upon extensive building operations, this rate of increase will not be maintained during the current year. The increase of population from Easter, 1870, is shown by the following table:

	Population.		Population.
Easter, 1870	226,022	December 31—	
December 31—		1884	324,649
1871	244,484	1885	345,036
1876	272,560	1888	401,044
1881	300,467	June 30, 1889	404,489

Rome became the capital of Italy, September 20, 1870. The transfer of the Government brought with it many thousands of employés in the various departments. Property advanced in value and speculation in real estate began. Then the large mercantile houses in Italy commenced to establish branch houses here. The confiscation of church property was extended to Rome and a large amount of it sold to speculators at very low prices. With the moving of the government, the influx of people and of capital, great improvements were begun and the idea seemed to prevail that Rome must be rebuilt and that what was found in brick must be left in marble.

The rebuilding of Rome.—Plans for the enlargement and improvement of the city and for regulating the course of the Tiber were made by a commission appointed by the government from a large number submitted by eminent architects and engineers. These contemplated improvements, which were to be completed about 1920, included government buildings for the departments of justice, war, and finance, and for Parliament, new bridges over the Tiber, heavy walls on both banks to prevent inundations and for widening, straightening, and dredging it. Hundreds of houses were to be demolished so that magnificent avenues might be built along each bank of the river.

By the tax book of 1783 the Commune of Rome embraced the Agro Romano, commonly called the Campagna, which includes the city proper and its suburbs. Its greatest dimension is about 30 miles and the shortest about 5 miles, and it contains an area of 511,346 acres. The suburbs embrace an area around the city varying from 1¼ to 4¾ miles in width and have an area of 20,266 acres, and are cultivated with fruit trees and vineyards. The area of the city proper December 31, 1881, was 14,674,500 square meters (about 3,625 acres), and December 31, 1888, 15,711,500 square meters (about 3,883 acres. January 1, 1882, the area covered by buildings, including courts and gardens attached, was 3,403,150 square meters (about 841 acres). March 31, 1888, the area was 4,718,115 square meters (about 1,164 acres), or with the suburbs added, 4,935,210 square meters (about 1,220 acres). In 1881 there was occupied for churches and monuments 578,170 square meters and in 1888

589,220. In 1881 the streets and squares occupied 2,492,469 square meters and in 1888 3,487,061.

The plan before referred to, called the "plano regolatore," contemplated the complete building transformation of Rome, and for that purpose the purchase of large tracts of land covered with buildings, the demolition of the buildings, the laying out of new streets, and the sale of the remaining lands for the erection of new houses to be built in accordance with plans to be approved by the city. In accordance with this plan the city purchased, between 1881 and 1888, houses occupying an area of 181,875 square meters, or nearly 12½ per cent. of the area built upon in 1881. Of this amount 35,459 square meters were sold to be built upon, 136,177 were used for streets and squares, and 10,239 are on hand to be sold for building purposes.

In addition to the improvements contemplated by the city private speculation in lands and houses began soon after the occupation and went on in an increasing ratio until it culminated in the financial and building crisis of the year 1889, when the bubble burst. Between 1881 and 1888, 1,508,790 square meters that were unoccupied in 1881 were built upon. There is no record available of the space covered by new erections between 1870 and 1882, but between October, 1870, and December 31, 1881, licenses to inhabit 1,531 new houses and 600 that had been rebuilt were issued by the city. From January 1, 1882, to March 31, 1888, licenses to build and rebuild 1,276 houses were issued and permits to inhabit 1,174 new houses and 193 that had been rebuilt. The total number of permits to occupy such houses was therefore 3,498, not including, of course, those completed, for which no permits had been issued or those in process March 31, 1888, or those that have been begun or completed since. The city requires a thorough inspection of dwellings before these licenses to inhabit are issued, both in regard to their safety and their sanitary condition, especially in regard to the dryness of the walls, which, being very thick, dry slowly in this climate.

As these houses are usually five and six stories in height and have on an average twenty-two rooms to each story, it can be seen that a vast addition to the building accommodations has been made.

Land near the railroad station increased in value from 1.64 per square meter to $24, $25, and even $29, according to the location.

There is no estimate of the cost of the houses built up to 1882, but from January 1, 1882, to March 31, 1888, it is estimated that the new houses (including public constructions) cost $52,882,000, not including the cost of the land. The Government and commercial buildings erected during the same period cost $19,546,356.

The engineer, Mr. R. Buti, having carefully estimated the cost of sixty-seven houses, concluded that the six-story houses cost on an average $78.41 per square meter, and the five-story houses $62.19, and that for every 100 lire expended 65.30 were for the walls, 24.56 for the roofs, pavements, and fixtures, and 10.14 secondary work and finishing. They are as a rule absolutely fire-proof, no combustible substance being used in their construction, except for doors and for window-sash and frames.

Notwithstanding the immense addition of houses, rents advanced almost in the proportion that the houses increased in numbers. At the end of 1887 there had been loaned on these buildings and the lands occupied by them by various institutions $52,882,000, to which must be added $4,825,000, for which there was additional security, of which about one-third, or $1,608,000, were on the buildings, making a total of $54,490,000, which can not much exceed half the supposed value of the security.

The expenditures by the city itself for the improvements and rebuilding between 1871 and 1880 are not available, but between 1881 and 1889 they were as follows:

1881	$774, 335. 21	1886	$5, 229, 211. 07
1882	866, 780. 64	1887	6, 057, 595. 00
1883	3, 646, 056. 92	1888 (estimated)	6, 535, 023. 54
1884	4, 905, 257. 52		
1885	3, 953, 743. 33	Total in eight years	31, 967, 918. 23

In addition the National Government has expended on the works connected with the improvement of the Tiber to the end of 1887 $6,019,421.05.

As a result of this lavish expenditure of money, both by the city and by individuals, and hastened by the financial crisis brought about as before mentioned, a severe local crisis has occurred during the present year in Rome, both among individuals and in the city affairs. The banks having loaned so largely and their remaining resources having been impaired by the financial crisis they were not only unable to continue loaning on new erections, but in several instances were compelled to ask the aid of the Government, which, to prevent a general financial panic, was granted.

The suspension of loans caused a suspension of building and thousands of workmen were thrown out of work during the winter of 1888-'89. This but added to the distress prevailing. The workmen being unable to obtain employment, soon became desperate and brought on extensive bread riots. It has been estimated that 40,000 workmen, gathered from various parts of Italy, were engaged in the building operations, and that 30,000 of them were thrown out of work. Relief for them to a great extent was had by the city returning large numbers to their homes at the public expense.

Failures occurred on a large scale and the years 1888-'89 will long be remembered in Rome as years of disaster. A general idea of the extent of the troubles in Italy and Rome may be gathered by comparing the failures for 1885, 1886, and 1887 with those for 1888-'89:

Year.	Number of failures.	
	Italy.	Rome.
1885	1,123	88
1886	1,306	75
1887	1,603	105
1888	2,212	160
1889	2,032	206

But the troubles attending the building crisis did not cease with those who were compelled to suspend by reason of being unable to obtain loans to complete their building, and who therefore were compelled to at once become bankrupt. Those who, by means of loans for a part of the value added to their own resources had been able to complete their buildings, found themselves in almost as bad a situation. For there having been more houses built than were needed, and the rents demanded being such as would prevent any accession of population from the other parts of Italy, they were unable to rent them. All their resources were locked up in the buildings and when the half-yearly interest and the annual installment of the principal became due they were unable to meet either, with the natural result of agitations, borrowing at usurious rates, proceedings at law, and also a depreciation of the mortgage bonds which are too well known to have been employed in an unfortunate business.

A serious question for Rome now is how to meet these difficulties. If the banks foreclose so great a number of mortgages there can be no purchasers but themselves, and if they buy such vast properties many of them must become landlords rather than bankers. The ruin of so great a number of citizens would cause still further depression and render an adequate income from the houses impossible for the present. It has been suggested that the banks give an extension of ten years on the payment of the installments on account of the principal to those who are not hopelessly bankrupt. Thus the landlord can reduce rents to such prices as will attract people here to occupy their houses, and the city will continue to increase in population, thus permitting before long an increase in rents. Also, while the banks can not during this period receive any part of the loans, they can soon begin to receive their interest with the certainty that their security is yearly increasing in value.

Public health.—The health of Rome has remained good during the year. The system of sewerage that has been perfected since it became the capital of Italy, an abundant supply of the purest water, and the great care to keep every part of the city perfectly clean, has changed it from one of the most unhealthy cities in Europe to one of the healthiest. For the first half of the year the statistics of deaths in the city, the suburbs, and the campagna were kept somewhat different from the latter half, so that the proportions of the city and suburbs can not be exactly given for greater periods than six months, but the difference o that account will be found to be but a very small percentage. The fo lowing table will show the total number of deaths in each quarter an the ratio per 1,000 inhabitants in the city, the suburbs, and the Campagna:

Description.	First quarter, July 1 to September 29, 1888.	Second quarter, September 30 to December 29, 1888.	Third quarter, December 30, 1888, to March 30, 1889.	Fourth quarter, March 31 to June 29, 1889.	For year.	Ratio fo year per 1,000 inhabitants
Deaths in commune	2,366	2,594	3,045	2,276	10,281	25.
Deaths of non-residents	402	505	541	431	1,879	4.
Deaths in the city	2,069	2,297	....	....	4,366	24.
Deaths in suburbs and Campagna	297	297	....	....	594	30.
Deaths in city and suburbs	....	....	2,878	2,180	5,058	27.
Deaths in Campagna	....	....	167	96	263	18.
Population of commune	391,188	393,496	401,044	404,449	....	....
Population of suburbs and Campagna	38,609	39,544	....	....	....	....
Population of Campagna	....	....	27,989	29,372	....	....
Population of city	352,579	353,952	....	....	....	....
Population of city and suburbs	....	....	373,155	375,077	....	....

The chief causes of death in each quarter and for the year have been as follows:

Disease.	First quarter.	Second quarter.	Third quarter.	Fourth quarter.	Year.
Measles	32	35	76	62	205
Fever, typhoid	43	58	28	28	157
Fever, malarial	64	62	32	45	203
Diphtheria	21	38	67	69	190
Syphilis	52	76	84	63	274
Apoplexy	108	115	180	120	523
Eclampsy	121	110	163	94	488
Bronchitis	70	141	283	101	595
Pneumonia	113	175	364	203	855
Pulmonary tuberculosis	172	195	201	206	774
Diseases of the heart	104	151	188	139	582
Enteritis	332	174	118	117	741
Mesenteric consumption	71	42	31	50	194

The births have been as follows in the commune:

	First quarter.	Second quarter.	Third quarter.	Fourth quarter.	Year.
Total	3,012	3,114	3,495	2,932	12,553
Legitimate	2,446	2,457	2,758	2,317	9,978
Illegitimate	566	657	737	615	2,575

The streets of Rome are well provided with sewers. At the end of 1870 there were 46,169 yards of sewers, not counting the Trastevere division or part of the Regola. From that date to 1883 many old sewers were put in order and 3,869 yards of new built in the Castro Pretoris, the Esquiline and Celean quarters. The quarters constructed since 1883 will be furnished with 59,832 yards, of which 32,800 were constructed at the beginning of 1888. In addition, 2,964 yards in the old city have been repaired or rebuilt, leaving 8,290 yards to be constructed there. The sewers are divided into three classes, which are of the following dimensions:

	Feet. Feet.
First-class	8.20 by 6.56
Second-class	5.91 by 3.92
Third-class	2.95 by 2.00

The streets are kept neat and clean. They are swept often and the sweepings and garbage promptly removed. The expense of keeping the streets clean in 1886 (the last year for which the reports are printed) were $126,764.72, or about 5 cents per square yard.

The water supply is abundant. Four aqueducts have a capacity of 232,400 cubic meters, or upwards of 51,000,000 gallons. The water is pure and will compare favorably with the supply of any city.

City taxes.—The taxes collected in Rome are very heavy, as may be seen by the following table (customs duties not included) for the last twelve months for which the reports are printed:

For 1887 (twelve months):	
The octroi or tax on eatables and drinkables	$2,428,905.00
Salt, tobacco, lotteries, and manufactures	2,627,481.53
For 1887-'88 (twelve months):	
Taxes on business, successions, etc	4,379,674,94
For 1888 (twelve months):	
Lands	394,439.43
Buildings	1,817,254.66
Incomes	2,626,317.37
Total	14,274,072.91

Canal to the sea.—A project is on foot to connect Rome with the sea by means of a ship-canal and thus make it a sea-port. The plans contemplate a canal to start from St. Paul's, outside the walls, and to terminate at the sea about 3½ miles from the mouth of the Tiber. It will be built perfectly straight and about 12½ miles long. That part nearest the sea will constitute an outer port about 1,300 feet in breadth, and will be formed by two jetties, at the extremity of one of which will be a lighthouse visible 17 miles at sea. The depth of this harbor will be about 36 feet. The port proper will be about 4,600 feet long by about 2,000 feet wide, with a uniform depth of about 33 feet.

The cost is estimated at about $19,300,000. No aid is to be asked from the Government until the canal is completed, when it is to take possession at cost upon the payment of interest at 5 per cent. and 1 per cent. amortization during forty years. It will then become state property.

Food and labor prices.—The condition of those workmen who have in any manner been dependent on building operations in Rome during the year has been deplorable, and of those otherwise employed it has been as good as could be expected in times of financial depression.

The prices of necessaries of life vary in Rome very much at different seasons of the year. Dealers take advantage of a slight increase in the wholesale price to add a disproportionate amount to the retail price or to advance the latter on the appearance of a slight increase in the demand to what would seem to us extortionate prices. As there are no sufficient or organized means of competition by drawing supplies from other quarters there seems to be no redress except to patiently wait until a decreased demand shall, if ever, force prices to their normal standard.

The following table will show the average retail prices of provisions at this date in Rome, the terms first, second, and third quality of meats having reference to the various cuts in the same animal:

Beef:		
First quality	per kilogram..	$0.40½
Second quality	do....	.34¾
Third quality	do....	.31⅞
Veal:		
First quality	per kilogram..	.86⅞
Second quality	do....	.60
Third quality	do....	.40½
Lamb:		
First quality	per kilogram..	.40½
Second quality	do....	.34¾
Third quality	do....	.29
Ham:		
First quality	per kilogram..	.96½
Second quality, shoulders	do....	.86⅞
Butter	do....	.63 7/10
Sugar:		
Loaf	per kilogram....	.34¾
Granulated	do....	.31⅞

Tea, green or black	per kilogram.	$3.47
Coffee, Java, first quality	do....	.83¾
Wheat flour	do....	.11⅝
Corn-meal	do....	.5 4/10
Bread:		
Extra quality	per kilogram..	.15¼
Usual quality	do....	.8¼
Cheaper quality	do....	.8
Maccaroni:		
First quality	per kilogram..	.15⅜
Second quality	do....	.11⅝
Olive oil:		
First quality	per liter..	.34¾
Second quality	do....	.11⅝
Milk	do....	.7⅜ to .9¼
Kerosene	do....	.13¼
Potatoes	per kilogram..	.03⅞
Coke	per ton..	11.58

Wages do not vary much from one year to another and are about as follows:

Stone masons	per day..	$0.54 to	$0.58
Carpenters	do....	.56	.78
Blacksmiths	do....	.55	.68
Day laborers	do....	.29	
Stone and marble cutters	do....	.70	.80
Statuary (in the rough) cutters, per week		5.79	7.72

Statuary (finishers), cutters, per week		$12.00 to	$14.86
Clerks in stores, males, per month		8.00	16.00
Chambermaids	do....	1.93	8.62
Cooks (males)	do....	9.65	
Cooks (females)	do....	2.89	8.86

Trade with the United States.—Trade between Rome and the United States has felt the various crises through which the city has passed, and was materially less than for the preceding year. The exports to the United States, as declared in the consular invoices, amounted to $209,534.49, and consisted chiefly of cheese, raw silk, paintings, statuary, and plaster casts. For the previous year the exports amounted to $259,576.80, and for the year ending June 30, 1887, $206,876.17. These figures, however, do not represent the actual amount of trade with the United States, for the purchase by travelers in small amounts of articles that pass immediately into use or for which no consular invoice is required by law must be very large. It is estimated that the number of our citizens visiting Rome annually is about ten to thirteen thousand, and it would be certainly a moderate estimate that their purchases at retail would equal the declared shipments.

No complete record of our citizens residing in Rome has been kept in this office; but steps have been taken to procure such a list. From the returns received it is estimated that the number is about three hundred.

CIVITA VECCHIA.

General industrial condition.—Civita Vecchia has about 850 square kilometers of land, with a population estimated at about two hundred and eighty-three inhabitants for every square kilometer. But a small part of the land is under cultivation, owing to the fact that it is held in large blocks or farms by a few very rich land-owners, who find it more profitable to devote the land to pastures and forests. Consequently the principal productions are cattle, sheep, cheese, wool, timber, and to a limited extent wheat. The reduction in recent years in the price of wheat and corn, caused by the competition of other countries, and especially of the United States, is to a very great extent the reason for this limited cultivation of the soil.

Emigration.—This district being thinly peopled requires additional help for its agricultural works, which is generally obtained from the south of Italy. There is consequently no emigration.

Health.—During the latter part of summer and the first month of autumn the country parts of this district are quite unhealthy, which is entirely due to the lack of cultivation, and ague and fever prevail. The large boroughs in the mountains, however, and this city are perfectly healthy in every season. The latter is not subject to contagious diseases, as it occupies a very favorable location and is continually swept by strong breezes.

Commerce.—The commerce of this port consists chiefly of large quantities of coal and pig-iron in transit for the interior. The commerce with France has been materially injured by the rupture of the commercial treaty.

Workingmen.—Workingmen are well paid in this district, receiving on the average from 80 cents to $1 per day for loading and unloading vessels, and in the interior from 30 to 40 cents. There is an iron manufactory in Corneto Tarquinia employing about sixty to seventy hands, and an alum factory here with about fifty. The workmen in these establishments get from 40 to 50 cents per day. In the city the food is generally good, and meat and wine are regularly used. In the interior meat is seldom used, but there is an abundance of good wheaten bread, pork, vegetables, and dry fish. Women are not employed in heavy work in the city, but in the small towns and boroughs they help the men in farming and gardening.

Food prices.

Eggs	per dozen..	$0.08 to	$0.10
Meat	per kilogram..	.30	.32
Fish	do......	.20	.30
Vegetables	do......	.12	.14
Wine	per liter..	.08	.10

The duty on wheat is 5 lire (96½ cents) per quintal.

Mines and mining.—The mines are limited to aluminite mineral and kaoline. About one hundred and ten workmen are employed, and receive as wages from 30 to 40 cents per day of nine hours in the winter and ten in the summer. There are about 8,000 tons of aluminite yearly extracted. There are no complaints of food or lodgings, and good health prevails among the workmen.

Civita Vecchia possesses a technical school, in which the pupils are taught free of charge the same branches as are taught in the same class of schools in Rome.

ANCONA.

Labor.—In Ancona the wages average from 40 to 60 cents per day for tailors, 40 to 50 cents per day for hatters, shoemakers, and whitesmiths, 60 cents for coopers, 30 to 60 cents for bricklayers, blacksmiths, and carpenters. The average wages earned by women who work at the tailoring trade at home are 16 cents per day, and by girls 8 cents. The hours of labor are twelve in summer and ten in winter. Strikes are seldom or ever thought of. The diet is most simple, consisting chiefly of bread, polenta, and vegetables, which are abundant; meat is seldom used.

Living.—Meat varies in price from 13 to 30 cents per pound, meal 3¾ cents per pound, macaroni 4 to 8 cents per pound, eggs from 12 to 16 cents per dozen. Prices are generally steady, but vegetables vary of course with the season.

Schools.—There are two technical schools, a gymnasium, and several elementary schools, all free, except an entrance tax at the technical and the gymnasium. At Fabriano, in this province, there is an agricultural school.

Miscellaneous.—The climate is excellent and there are no prevailing diseases. It is warm in summer during the morning, but cool breezes from the sea sweep in before evening. In winter it is quite cold, especially when the wind is from the northeast. There is little if any emigration from Ancona, but occasionally a few peasants may go to South America. There are no citizens of the United States residing here, and there are seldom any tourists except those who occasionally stop for a night on their way through the city. The imports consist chiefly of manufactures, coal, iron, coke, and general goods. There is very little exportation. There is a sugar refinery which imports largely of raw sugar. The railway imports about 70,000 tons of coal annually from Great Britain. There is good railway communication with all parts, and monthly and fortnightly lines of steam-ships, and direct communication with Egypt. The population of Ancona is about 40,000.

CAGLIARI.

Cagliari, on the island of Sardinia, is the seat of a consular agency of the United States attached to the consular district of Rome. The island has a population of 680,000, and an area of upwards of 6,000,000 acres, much of which is mountainous, stony, and otherwise unproductive. Vines, olives, corn, vegetables, and fruit trees flourish in all parts. The climate is favorable, and were the farmers possessed of abundant capital, the crops of olives, almonds, figs, and fruits could be largely increased. There has been considerable progress made during the past thirty years, but many generations will doubtless pass away before the island can attain to the prosperity of ancient times, when its population was fully 2,000,000. It has no direct trade with the United States.

Workmen receive according to the work from 25 to 60 cents per day, and women from 15 to 20 cents. Meat is seldom used by the laboring classes. In winter eight hours constitute a day's work and in summer eleven hours. The people dress largely in home-spun woolens made from pure lamb's-wool and of a quality surpassing the product of factories. Women find occupation in their homes in producing these woolens for their own dresses as well as for the clothes of the male members of the household. The sanitary condition of the people is generally good. Strikes are unknown and workingmen are as a rule contented with their lot. Their houses are generally of clay or rough stones, and have a yard in front. The tenement houses are not in good condition. The diet is healthy and good. Meat used by workingmen costs from 7½ to 10 cents per pound; flour meal, 7½ cents; macaroni, 6 cents. Vegetables are abundant and cheap. Eggs are usually 12 cents per dozen. There are no manufactures of any importance. The condition of agriculture is generally very poor. The prevailing diseases are the marsh fevers. The healthiest months are from October to June, the balance of the year should be avoided by tourists. There is practically no direct trade with the United States.

PIEDMONT.

Turin.—In common with the rest of Italy this city is passing through a sharp financial crisis. For some five or six years past quite an extensive speculative movement has prevailed. Whole quarters of Turin have been demolished, new streets laid out, and costly buildings erected. These operations have been carried on in excess of the public demand, and as the rents asked for the new houses are higher than can be paid they remain for the most part unoccupied and yielding no return. The banks have advanced heavy loans for these works, taking mortgages on the constructions as their security, so that they now find not only their reserve capital but also their client's deposits locked up in non-paying real estate investments, with no immediate probability of a release. A sense of alarm has spread, and lately a run took place on one of the most important banks of this city, the Banque d'Escompte. After a three-days siege the bank had to suspend payment, and in the panic that ensued several commercial houses went under, and for a time the disaster threatened to become general. The Government, however, interfered in favor of the Banque d'Escompte, so that this institution, having been aided by the powerful bank of Naples, has now resumed payments to depositors, but its stock has depreciated considerably, and its bondholders, for the most part persons of limited means, are considerably distressed, for they will in all probability receive no dividends for two or three years, even if then.

Crops.—The accounts from the agricultural regions are most discouraging. In consequence of heavy rains having persisted all through the spring months and well into the middle of July, the returns of crops are below the lowest average. The pernospera has played havoc with the vines throughout Piedmont, so that the grapes have completely failed, with the result of little or no wine this year. In the hills the farmers, not having been able to gather fodder for their stock during the coming winter, have been forced to sell their cattle for whatever they could get, and provisions of all kinds have greatly advanced in cost.

Labor.—In Turin the condition of the artisans and workmen is rather favorable than otherwise. Their habits are extremely sober, and, as a rule, they are very industrious and economical. Trades requiring a certain degree of skill, such as butchers, brass-founders, tailors, etc., are paid average monthly wages, respectively of 200, 90, and 70 francs. Common workmen, however, have a hard time to keep body and soul together for themselves and families, as their wages average only a franc and a half (30 cents) per day. In factories and machine shops the engineers, draughtsmen, and responsible employés are paid according to the value of their services, but salaries for the highest class of technical skill rarely exceed 4,000 or 5,000 francs per year. Clerks earn from 1,200 to 1,800 francs per year, and this under the most favorable circumstances. Women are employed in the silk factories and arsenal work-shops, and are paid from 60 centimes (12 cents) to 1 franc 40 centimes (28 cents) per day.

Living.—The mode of living among the working classes of Piedmont is extremely poor. Meat is but little used, and the general staple is *polenta* (corn-meal mush), vegetable soup made with a little oil or pork, and coarse bread. Wine is consumed in the cities, but in the agricultural regions it has come of late years to be regarded as an article of luxury, owing to its high price. It must be added, however, that the food of the laboring classes is poor in quality and often stinted in quantity. The Piedmontese workmen are extraordinarily robust and healthy in appearance, and seem to be content with their lot in life.

Lodgings.—In this respect the Piedmontese workman is comparatively well off. Families generally live in two or, at the utmost, three rooms. Their quarters are located in the garret-floors of the houses so that at least they have the benefit of pure air. From personal observation the vice-consul reports that he has not come across any overcrowding of tenants in these lodgings. There is an ample supply of water and it is freely used, for the Piedmontese, like the Swiss, are cleanly in their habits.

Strikes.—Strikes in Piedmont are very rare and insignificant. There have been only two or three partial attempts at a strike for the past four years, such differences as existed having always been settled within twenty-four hours. The day's labor ranges from twelve to fourteen hours, but when, as is sometimes the case, contractors or builders attempt to lengthen these hours without extra pay trouble is pretty sure to ensue. These differences, however, between workmen and employers are generally adjusted, either by arbitration or by mutual concessions, so that serious consequences are always avoided.

Emigration.—There is a steady flow of emigration from Piedmont, principally to the Argentine Republic. The emigrants are for the most part agricultural laborers and small farmers, who, discouraged by the hopelessness of their position at home, try to better themselves by starting in search of employment or land to cultivate in the wide expanse of the Argentine Republic. Emigration to the United States from this district is confined to mere individual cases, and is very insignificant.

Sanitary condition of Turin.—Epidemics of any sort are unknown in this consular district, and Turin is perfectly healthy all the year around. There is an abundant supply of water, the sewerage is good, and the streets are maintained in a most admirable condition of cleanliness. The city is located on a plain over which the winds from the Alps sweep, continuously renewing and maintaining the purity of the air. The winter is severe, but not unduly so, and the public health is, generally speaking, very satisfactory.

Americans in Turin.—There is quite a steady stream of tourists passing through Turin in the spring and autumn months, but there are no resident citizens of the United States. The climate is too cold for our people, and the city itself possesses no attractions sufficiently great in the way of antiquities or art to induce travelers to remain. Most travelers go south, either to Florence, Rome, or Naples, for the winter.

FLORENCE.

Wages.—In Florence the wages of workers in marble average about as follows: "Stozzatori" who shape the marble block receive from 3 to 6 lire (60 cents to $1.20) and working or finishing sculptors from 4 to 12 lire (80 cents to $2.40) per day, according to proficiency. Workers in alabaster receive from 3 to 6 lire (60 cents to $1.20) and workers in Verde di Prato and ordinary stone-cutters from 2 to 3 lire (40 to 60 cents) per day. The number employed in this kind of work amounts to about 2,300. Ten hours is considered a day's work.

Wood carvers, cabinet makers, carpenters, and gilders receive from 3 to 10 lire per day, according to the value and quality of the work done. Wood carvers, however, generally work by the piece. Carriage makers receive from 3 to 8 lire per day. Of the former there are about

2,100 males and 750 females employed (the females as polishers) and of the latter about 870 men. The native woods used by carvers and cabinet workers are "guiggoto" (*Zizyphus vulgaris*) for fine work, walnut, pear, alder, poplar, maple, cyprus, and fir, for ordinary work. The foreign woods used are ebony, rose-wood, and mahogany.

The wages of workers in porcelain and majolica ware average about 3 to 4 lire per day, but for extra fine work in china the wages are much higher. Of these the Ginori factory alone employes about 1,230 hands, 950 males and 280 females. There are a large number of establishments for the making of bricks, tiles, and earthern ware in this province, the wages averaging from 3 to 4 lire per day to molders, and 1½ to 2 lire for helpers.

The manufacture of glass flasks for wine and oil is a specialty in this province, the number made being very large. A good workman can turn out from 700 to 800 in a day and receives, by piece-work, from 80 centimes to 1 lire for each hundred pieces. The covering with straw or rushes is done by women, for which they receive 1 lire for each 100 flasks.

The wages paid for other manufactures of glass average to glass-blowers from 6 to 12 lire, to cutters 3 to 5, to mechanics 3½ to 4, to laborers 1½ to 4, and to boys 70 centimes (14 cents) to 1 lire 30 centimes (26 cents). The glass-blowers are generally French, Belgian, and German.

It is impossible to arrive at an estimate of the wages workmen in mosaics and jewelry, or of silversmiths and gold-beaters, as the work is mostly piece-work and done at home.

Ten hours are usually considered a day's work, except that in mid-summer twelve hours are demanded in some branches.

There has been but little change in the rates of wages in this locality for the past ten years, while the cost of living has increased during that period at least 20 per cent. in the articles of food used by the working classes. Besides the work of women alluded to above, in which their labor is paid at about one-half that of men, their home industry is principally employed in straw-plaiting, spinning and carding wool, dressing flax, and weaving home-made cloth of wool, cotton, and linen, the looms being very old-fashioned and cumbersome.

Strikes are almost unknown, and the workmen appear to be fairly contented, notwithstanding the extreme difficulty in many cases of making both ends meet, in consequence of low wages and the increased price of the necessaries of life. This applies especially to the lower class of laborers. All, however, are bread-winners, even the small children, and they manage somehow to subsist. It is questionable whether the amount of labor performed by each corresponds with the amount performed by workers in similar branches in the United States. Here the work is not only much slower by the day, but the numerous fête days and religious holidays materially interfere with continuous labor. Moreover the tools and machinery employed are much inferior to those used by the American workman. Hence the results are much inferior in finish and beauty to our own manufactures. Labor-saving machinery has not been as fully utilized as with us. Over-population rather than over-production tends to depress the prices paid in this country for labor.

Food prices.—The following statement shows the market value of eatables and necessaries in Florence:

[Per kilogram (2.2046 pounds).]

Articles.	Retail price.	City duties.
	Cents.	*Cents.*
Beef, second quality	30–45	4
Mutton	20–33	4
Salted meats	32–40	6
Wheat flour	12–18	1
Indian corn meal	6– 7	1
Macaroni	13–16	1½
Eggs, per dozen	20–25	2½

The city duty is included in retail prices.

It should be stated here that macaroni, as known in commerce, in consequence of its high price is seldom used by the working classes in central and northern Italy. There is an article called paste, composed of inferior wheat flour mixed with flour of chestnuts, which is cheaper and very generally used as food. Beans are also one of the staple articles of daily consumption, and also vegetables according to the season. Inferior cuts of fresh meat are occasionally bought by the better class of workmen for Sundays or fête days, but on account of its cost the poorer classes seldom use it. When meat is used at all it is generally cured or salted, the fatter the better, and the refuse hocks, bones, and rinds from the butchers' or grocers' counters are all consumed. A small variety of Indian corn is raised very extensively in this province, the meal being used for making *polenta*, which may almost be considered the national dish in this part of Italy. It is cheap and very nourishing. From the foregoing table it can be readily seen that comparing prices of provisions with those prevailing in the United States, and considering the wages received here, the greatest economy is absolutely necessary in households. Nothing is wasted.

Sanitary conditions.—In regard to the sanitary condition of Florence there is little cause of complaint. There is an abundance of good water for all purposes, the streets are kept very clean, and the authorities are earnest and untiring in their efforts in executing the laws and orders regarding sanitary matters. In the better residence portions of the city they have been fairly successful, and few, if any, complaints are heard, but in many of the quarters occupied exclusively by the poorer classes much remains to be accomplished in this regard. The houses occupied by this class are crowded with inmates, badly ventilated, and in many cases filthy in the extreme. Efforts are being made, with some show of success, to remedy this state of things by compelling the owners to comply with the sanitary regulations.

Technical schools.—There are four technical schools in Florence, having on an average six hundred and ninety pupils, and nine professors for each school. The course of study is for three years and the branches taught include Italian, French, history, geography, arithmetic, drawing, gymnastics, national sciences, and book-keeping. These schools are free, and the expense annually amounts to 17,440 Italian lire, or $3,488, one-half being paid by the Italian Government, and one-half by the municipality of Florence.

Public health.—The table which follows this subject will show the number of deaths arising from diseases to which foreigners are most liable in this climate, during the winter season of 1887-'88. Our consul at Florence, Isaac R. Diller, esq., has on more than one occasion advised the Department that from personal observation he was convinced that the climate of Florence was not suitable during the winter season for persons suffering from affections of the lungs or throat, on account of the cold and penetrating winds which sweep down the valley of the Arno after the mountains become covered with snow.

From reports recently received, it appears that the death rate has materially decreased within the period from July 1, 1888, to June 30, 1889, as compared with the previous year, the decrease being at least 3 per cent. The cause of this apparently high death rate is the large number of deaths of infants and young children, arising from inanition in the absence of nourishing food for parents and children. Outside of this cause the general health of the city is good.

Statement showing the prevailing diseases during the winter season of 1887-'88.

Diseases.	Nov.	Dec.	Jan.	Feb.	Mar.	Total.	Rate of mortality per 1,000.
Croup	5	9	8	13	6	41	0.5
Diphtheria	3	3	1	6	3	16	0.2
Inflammation of respiratory organs	41	47	101	75	93	357	4.9
Phthisis	58	49	65	44	63	279	3.8
Pulmonary catarrah	18	10	35	20	20	103	1.4
Total	125	118	210	158	185	796	10.8
Rate of mortality per 1,000	8.4	8.0	14.2	10.7	12.6	10.8	....

Population	176,804
Number of deaths	4,937
Death rate	28.40

Americans in Florence.—The number of families registered in this consulate as permanent residents of the city is one hundred and three, representing about five hundred souls, the great majority of whom are not engaged in business. Of these twelve are owners of real estate, the aggregate value of which amounts to more than 2,750,000 lire or about $550,000. The number of transient visitors from the United States averages considerably more than eight thousand annually, a large number residing here from one to six months. The reasons for making this their residence are the salubrity of the climate; its wonderful and unapproachable art galleries and libraries; its grand buildings and magnificent surroundings; its elevated, learned, and hospitable society; the cleanliness of its streets; its beautiful magazines of art and luxury, and the quiet and good order of its citizens. During the past five years there has been an advance in the rent of such apartments as are usually occupied by our citizens in Florence of at least 40 per cent., and of at least 25 per cent. in the price of provisions.

TUSCANY.

Straw goods industry.—This is the largest and most important industry of Tuscany so far as exports passing through the consulate at Florence are concerned, the shipments for the past five years having averaged $1,054,871 annually. In the year 1887 there was a marked decrease in exports of straw goods in consequence of competition from China, but as these goods did not prove so satisfactory as the Tuscan product, the latter recovered again in 1888 to about the former amount. In 1889 there was again a decrease in the exports, owing partly to the failure of one of the largest producers and partly to the large exports to the United States the previous year. This product is generally known as "Leghorn" straw, from the fact that formerly it was all shipped from that port.

The first and most important of the articles exported are straw braids. These are made, by women and girls, in lengths of 48 yards, which is called a piece. The Milan, or Maglina, plait is made of seven strands of pedal straw, and is from 3½ to 8½ millimeters in width. The United States consumes annually about 2,250,000 pieces, chiefly of the grade from 4 to 7 millimeters wide, double the amount of any other nation. The average cost to the exporter during the past two years has been from 34 to 38 cents per piece. The prices paid at present for plaiting are from 10 to 20 cents per piece. A quick worker can make about one piece per day.

The finer grade is called point plait, and is composed of seven strands of point straw. Of this grade about 1,500,000 pieces are annually sent to the United States. This work is so straining to the eyes that only two or three hours per day can be given to it. The price paid per piece for plaiting this quality is correspondingly greater.

There is also the fancy loom-made plait, commonly called Italian lace, for which it is difficult to make any calculation of the price, either in quantities or by the piece. The demand for this grade is very irregular and the variety of patterns almost infinite. A safe estimate of prices might be from 60 cents to $9.60 per dozen pieces.

There are also fancy plaits made of white plaited straw dyed. In this style of goods great progress has been made and a large variety of beautiful designs is produced. This, too, is an article of caprice, and no correct estimate can be made, for one year 500,000 pieces will be exported to the United States and not 50,000 the next.

Leghorn hats for ladies and gentlemen are a very uncertain article of export, for they depend entirely on the prevailing fashions. They are now coming into favor again. They are made of thirteen strands of plaited straw, and cost, according to quality, from $5.60 per dozen to ten or even twenty times that amount for the finer grades.

MILAN.

General industrial condition.—During the past year there has been a slight improvement in some branches of manufacture. The silk-spinners have suffered from the high price of cocoons, but subsequently the prices for raw silk were advanced correspondingly and are now held firmly at the advance. The farmers will long have reason to remember the bad crops of 1889. The drought during the summer and the floods later have caused them serious losses. The silk crop was at least 25 per cent. inferior to that of the previous year. In most parts of Lombardy the wine crop was a failure and everywhere inferior to the average. Grain has been fairly good, but Lombardy, which is a large grain-producing district has felt severely the competition of the United States and Russia. In the markets of Lombardy American grain is never quoted, but Russian grain is regularly quoted with the home article. The inference is that very little American grain finds its way there, but, by competition in the European markets, affects the grain market of Italy indirectly, as well as of those countries where it is regularly consumed. The Russian wheat is very hard and is extensively used in the manufacture of the best qualities of macaroni. In all the cities of this district there is a tax (the "dazio consumo") collected at the city gates on articles of food.

Food prices.

Beef and mutton	per pound	$0.12 to	$0.18
Cow beef	do	.08	.10
Veal	do	.15	.19
Chickens, according to weight	each	.10	.22
Ducks, according to weight	do	.26	.32
Butter in July	per pound		.19
Butter, end of October	do		.28
Lard, at present	do	.17½	.20
Eggs	per 100	1.60	1.80
Flour (for bread)	per 220 pounds		6.80
Flour (for paste, cheap variety of macaroni)	do		.460
Rice	do		9.60

Health of Milan.—The prevailing diseases in Milan are such as are prevalent in any large city in the north. Malaria, such as prevails in certain districts in the south of Italy, is practically unknown in Milan and in most of Lombardy. In Milan small-pox occasionally prevails, as the lower classes are very negligent in the matter of vaccination. There is also more or less typhoid fever, but less than might be expected considering that the city has no public supply of water, but is dependent on wells. Tourists therefore should be careful as to their drinking-water, though no cases of typhoid fever contracted at any of the hotels have been known at our consulate. The best months at Milan are the spring and fall. The winter is cold, damp, and foggy. The summer is very hot and dry. Persons in delicate health would therefore do well to avoid a prolonged stay either in winter or in summer.

Americans in Milan.—It is estimated that there are about forty citizens of the United States residing in the city. They are not attracted here by the climate, by the public insitutions, or by business opportunities, but solely by the reputation that Milan has for the training of operatic singers, and for the study of vocal music in general. The conditions attached to entrance in the celebrated conservatory of music are such as practically to exclude most Americans. Candidates must be under fifteen years of age and be proficient in the Italian language.

Strikes.—During the past year there have been an exceptionally large number of strikes among the silk-workers at Varese, Como, and other points, and, what is most noticeable, among the agricultural laborers in various parts of Lombardy. In most cases the strikes were more or less successful in spite of the interference of the police. This would seem to indicate, what was no doubt the case, that the laborers had a real grievance and that there was considerable discontent. The Democratic and Socialistic movement has acquired considerable force in the north of Italy. Milan is a stronghold of the Radicals.

Technical schools.—There is in Milan "The Superior Technical School," corresponding to our scientific, or rather polytechnical, schools for civil and mechanical engineering and allied branches. In connection with this school is the "Carlo Erba Electrical Department," recently founded by a bequest from Signor Carlo Erba, where all subjects relative to electricity are taught. There is also the Technical School at Como, where agriculture, and especially all topics relative to the making of cheese and other dairy products, is taught.

The effects of the late financial crisis have been less severely felt at Milan than in many of the large Italian cities. There have been no large financial institutions in danger, as in Rome, Turin, Cagliari, Bari and elsewhere, and no particularly heavy failures. Milan and Genoa seem to have been on a firmer financial basis than their sister cities. Of course the effects have been severely felt, as was to be foreseen, but the greater power of resistance and the solidity among the financial and industrial circles have shielded the city from disastsr.

GENOA.

Financial situation.—During the financial crisis that has swept over Italy, Genoa has been as solid as the rock-ribbed mountains behind her, and has been able from her financial strength to lend a helping hand to some of her sister cities, and to thereby help to stay the panic.

This consular district is anything but an agricultural district, only about one-fifth of its territory being capable of cultivation. It never has raised and never can raise one-quarter of the food consumed annually, and its people rely only to a limited extent on the crops for support. Breadstuffs are either brought from the interior provinces or imported by sea Such being the case, the failure of the cereal crops for any one year can not have so depressing an effect on the people as it must have in agricultural districts. This reasoning applies also to the wine crop, for very little but white wine, and that of an inferior quality, is raised in this district.

There has been no building crisis during the past year, but the erection of new buildings and the remodeling of old structures has been more active than for years past.

It is no stretch of the imagination to say that prosperity has never smiled more favorably on the people of this district than during the past few years, and the last year in particular.

This is owing doubtless to the good wages (for Italy) paid the people in their different occupations and the immense maritime traffic at this port, with Savona as a valuable assistant, Spezia with its great government works, and the ship-building yards in many of the small towns. In these various ports tens of thousands of workmen find steady employment at remunerative wages, and as a rule are happy and contented laborers.

Laboring classes—Males.—Workmen receive from 40 cents to $1.15 per day. Dock laborers command the highest wages; they receive from 77 cents to $1.15 per day. The work of loading and discharging cargoes at this port requires strong and active men, men of regular habits, and who will cheerfully comply with the wishes of their employers. Such men can be found here, and are perfect specimens of physical manhood.

Strikes are not frequent, but when such an event takes place it is speedily adjusted, for the employer usually yields to the just and modest demand of the workman. As a rule the laboring classes are contented. Dock laborers, from a general point of view, live well; meat is not a rarity with them, Probably the great majority of the men employed at the port, and they can be counted by thousands, indulge in meat daily. Workmen outside of the harbor, that is, teamsters, street repairers, and laborers generally, have some kind of meat as often as three times a week. Many, however, in city and country, whose wages are at the minimum rates, as before given, seldom use meat.

Female labor.—In the consular district of Genoa can be found several cotton, woolen, and paper mills. Women and girls are employed there, and receive from 14 to 30 cents per day. As servants in families females receive from $2 to $5.50 per month in addition to board and lodging. Sewing women who work at home command from 38 to 45 cents per day. If employed in a family, they receive 20 to 30 cents per day, besides dinner and supper, from neither of which meals the recipient is in danger of indigestion.

The mills in both city and country are usually run day and night, the operatives being divided into reliefs or gangs, each relief being obliged to take its turn day or night, as the case may be. The reliefs are usually three in number, sometimes four; consequently the hours of labor of these females are from six to eight in the twenty-four.

A city of palaces.—In no city in Italy are houses built on so large a scale as in Genoa, which no doubt is the reason for the saying that Genoa is a city of palaces. Where people can not build outward or rearward they build upward, for the space between the sea and the mountains is very limited. The houses in Genoa accommodate from twelve to fourteen families each, and each family has an apartment containing from five to twelve rooms, some even more. In old Genoa the majority of apartments permit of but little sunshine. From the very nature of the materials used, which are stone, brick, concrete, or marble for the floors, and with few regular fire-places, it requires but little labor to keep an apartment clean, and they are usually kept very neat and clean. House drainage, however, is still imperfect both in old and new Genoa. Flues are in every house, but the draft is not strong enough at all times to burn charcoal, the fuel universally used for working purposes, without the aid of a bellows or a fan in the hands of the kitchen maid. In warm weather in such houses apartments are cool, but in winter they are exceedingly uncomfortable. Even the richer classes must feel the winter keenly also, for in the great majority of houses neither wood nor coal can be burned for want of proper chimneys.

Cost of living.—An examination of the list and prices of household necessities annexed herewith will disclose the fact that the laboring classes can not indulge in the luxuries of the season every day:

Prices of household necessities in Genoa.

Alcohol	per pint	\$0.34	to \$0.40
Bacon	per pound	.18	
Bread	do	.04	.05
Butter	do	.34	.40
Charcoal	do	.01$\frac{1}{2}$	
Cheese	do	.27	.32
Coffee	do	.36	.40
Eggs	per dozen	.18	.48$\frac{1}{2}$
Fish	per pound	.04$\frac{1}{2}$	.13
Flour	do	.04	.05
Fowls—chickens	each	.40	.60
Fruits—in season	per pound	.03	.05
Fruits, later	do	.09	.12
Ham	do	.36	
Meal—corn	do	.03	
Meat:			
Beef without bone	per pound	.18	
Beef with bone	do	.11$\frac{8}{10}$	
Veal without bone	do	.27	
Veal with bone	do	.18	
Mutton	do	0.13$\frac{8}{10}$	
Meat—Continued.			
Lamb	do	\$0.16$\frac{8}{10}$	
Pork	do	.18	
Milk	per pint	.03	
Olive oil	do	.20$\frac{4}{10}$	to \$0.22$\frac{8}{10}$
Paste (a cheap sort of, maccaroni), per pound		.06	.09
Petroleum	per pint	.07$\frac{3}{10}$	
Potatoes	per pound	.01$\frac{1}{2}$	
Rice	do	.05	.06
Salt	do	.03	.06
Sausages	do	.36	
Soap	do	.06	
Starch	do	.09	
Tea	do	1.27	1.45
Vegetables:			
Green	per pound	.01$\frac{1}{2}$	.03
Dry	do	.03	.06
Vinegar	per pint	.06	
Wine	do	.06	.08

"Can a person live cheaper in Genoa than in the United States?" This question should be considered in two aspects. First. If one confines himself to the same class or grade and quantity of food at home as the Genoese indulge in, one can live more cheaply in the United States, because nearly every article needed in the household costs less there than in Genoa. Second. If one lives on the same quantity and quality of food in Genoa that our citizens are accustomed to have at home, one must spend much more money here.

But how as to clothing? Mr. James Fletcher, our consul at Genoa, states as his personal experience that gentlemen's clothing, taking the four seasons in their course, can be purchased as cheaply at home as in Genoa. Female apparel, however, is somewhat cheaper here.

Wealth of Genoa.—Although classed as the fourth city in the kingdom as regards population, still the wealth in Genoa is fully equal to that of any of the larger cities. The Marquis of Durazzo, for instance, owns nearly all the shares in that splendid line of steam-ships which ply between Genoa and the South American coast, and is also the owner of some of the finest palaces in the city. The Marqueses Palavicini and Doria and Mr. Raggio and Mr. Pignoni can count their millions not only in lire but in dollars. Hundreds of the citizens are millionaires.

Public health.—From the weekly reports, sent to the Department of State, regarding the sanitary conditions of the port, it appears that the death rate has averaged about 27 per 1,000 of the population during the past four years, which is not excessive. For tourists it can be safely stated that Genoa can be visited in every month of the year with perfect safety from climatic influences.

Technical schools.—There are ten technical schools in Genoa, in six of which the salaries of the professors are paid by the government, the buildings, apparatus, and furniture being provided by the city. In all the schools the pupils pay the nominal sum of from $4 to $11.50 per annum. In each, the pupils are fitted for the university established here, where one can graduate in medicine, surgery, and law, as well as in the usual literary and mathematical courses. The different commercial branches—mechanics, navigation, and engineering are also taught. An academy of fine arts—a most excellent institution of the kind—is supported partly by the municipal authorities and partly by private subscriptions from open-hearted citizens, one of whom is the vice-consul of the United States, Federico Seerni.

Emigration.—Emigration to the United States is insignificant. Absolutely not an emigrant leaves this port to go there except as a common seaman. Many, however, go to the countries of South America to better their social and financial condition. The countries along the River Plate are better known to the people here, because better advertised. If people from this section do emigrate to the United States they go by rail to Havre and thence by steamer to New York.

Americans in Genoa.—There are but seven families registered in this district as citizens of the United States, five of which are naturalized and are permanent residents.

American shipping.—The American flag is seldom seen in the port of Genoa. Only one merchant vessel and two men-of-war carrying our flag have entered the port this year, but seventy-four bills of health have, during the same period, been granted to foreign vessels bound for the United States.

LEGHORN.

Exports to the United States.—The exports from Leghorn to the United States during the fiscal year ending June 30, 1889, show a valuation of $1,767,750.06, which shows a decrease of $149,916.86 as compared with the year preceding, notwithstanding which there appears to be a decided accession of confidence and a greater degree of energy among the exporters and business men than has been shown during the past few years. It must be stated, however, that for some time business has been done on such a low basis, and the system of rivalry and under-cutting has been so prevalent, that the returns to the brokers, agents and exporters when settling day arrived, have been literally nothing and often less.

The marble exports during the fiscal year in comparison with the previous year shows in—

Block marble, an increase of	$75,314.60
Statuary marble, an increase of	35.23
Worked marble, a decrease of	154.44
Slabs, a decrease of	7,434.43

Of the other principal items of shipment the following show an increase:

Candied citrons	$6,399.63
Olive oil	18,248.91
Rags	659.91
Soap	8,154.27

and the following a decrease:

Iron ore	$94,423.47
Argols	52,527.87

Mr. William T. Rice, our consul at Leghorn, thinks that opportunties are continually presenting themselves at Leghorn as a market for American goods and inventions. But such inventions or goods should be placed in view by men of trust and energy, and if possible acquainted with the language and the customs of the country, and the articles should be of a homely and practical value. Americans should by all means be employed as agents to show and sell American goods.

In latter years there has been a falling off in the shipments of marble to the United States, especially of block marble. This is no doubt owing to the fact that the saw-mills in the United States can not compete with marble sawed in this country owing to the great advantage that importers of slab marble have by way of duty, over those who import block marble. In any revision of our tariff this should be rectified. In the future, Carrara marble will be shipped to the United States in blocks, only for monumental work.

Wages per week of sixty hours.

Bricklayers	$3.35	Brickmakers	5.40	Engravers	5.00
Masons	4.60	Brewers	2.80	Gardeners	2.40
Plasterers	3.60	Butchers	3.60	Hatters	3.20
Roofers	3.60	Confectioners	4.00	Printers	4.00
Plumbers	3.60	Cigar makers	2.40	Saddle-makers	3.60
Carpenters	4.60	Draymen	3.00	Tailors	2.40
Bakers	3.60	Cab-drivers	4.00	Tanners	3.60
Blacksmiths	3.20	Street railways	4.00	Telegraph operators	5.40
Bookbinders	3.20	Dyers	3.00		

The wages of an ordinary workman in the general trades are from 60 cents to $1 per day. Skilled workmen are, of course, paid according to their ability. Agricultural laborers earn from 20 to 40 cents per day. Women work in most of the factories and earn from 20 to 60 cents per day. Meat is but rarely used by the working classes. The hours of labor vary according to the season from twelve hours per day in summer to ten in winter. In many of the factories wages are paid per week of sixty hours. Piece work is done in many houses by women and girls with hand looms, etc., for the various factories, from materials furnished them. The sanitary conditions of the dwellings for workmen are of the poorest description, little or no care being given to them.

Computed weekly expenditure of a family of two adults and two children, aggregate weekly earnings computed at, say, 45 *lire* ($9).

Bread	$1.60	Eggs	$0.20	Tobacco and wine	$1.20
Meats	.40	Vegetables	.20	Rent of rooms	2.00
Oil	.40	Fruits	.20		
Cheese	.40	Fuel	.60		$8.00
Fish	.40	Light	.40		

Strikes.—Strikes are becoming more and more frequent and the working classes seem to be more discontented than in neighboring countries. They live almost invariably in rooms in tenement houses. Their diet consists of bread, cheese, chestnut or corn-meal, cooked dried beans, macaroni, and fruits according to the season. A little meat, boiled to make a soup, once or twice a week is considered a luxury. They drink a cheap wine costing about 2 cents a quart, made by boiling the refuse of good wines, and called vinello.

The cost of meat (such as workmen buy) is, per pound of 12 ounces, 9 to 10 cents; flour meal 3 cents; corn meal, 1.4 cents; macaroni, 3.6 cents.

Vegetables cost according to the supply, but are cheaper than in most other places. Potatoes cost about 1.2 cents per pound of 12 ounces; eggs vary in price from 12 to 14 cents per dozen in summer to 24 cents in winter. In the consular district of Florence very little wheat is produced, but comparatively a large quantity of Indian corn.

Duties on food articles.—Italy, with the exception of wheat and petroleum, may be said to be self-sustaining. The duty on wheat is $1 per quintal of 220 pounds. On petroleum the duties amount to over

300 per cent.—a case of 10 gallons, which costs in America say 5 francs, costing here some 25 francs. The town dues (octroi), however, are what press the heaviest on the laboring classes, all articles of food of every description being taxed heavily upon entering the towns or cities.

Mines and mining.—There are a number of mines in the consular district. The most important are those of iron ore in the Island of Elba, but there are also important copper and quicksilver mines. The marble quarries at and about Carrara and the Borax Springs at Pomerence may also come under this head. The former employs one thousand men, and while the production is yearly increasing the quantity sent to the United States has gradually decreased since the opening of the various quarries there. The workmen earn from 2 to 3 francs per day, and rarely more than the latter sum except in the case of skilled workmen.

The prices of iron and quicksilver seem firm, but copper has declined considerably.

In these mines the workmen average from 2.50 to 3 francs (50 to 60 cents) per day. In food, houses, etc., they live the same as the ordinary workmen mentioned before. They are usually paid weekly, sixty hours' labor constituting a week. Their average health is fair. Women work also in the mines and earn from 20 to 40 cents per day.

The workmen here live much more frugally than in other countries. A workman earning 3 francs (60 cents) per day can manage in some way to support his family even though the prices of meat, eggs, flour, and other necessaries are often higher than elsewhere.

Technical schools.—In Leghorn there are two technical schools, an elementary and high school, both of which are free. Calligraphy, ciphering, design, geometry, geography, duties and rights of citizens, chemistry, natural history, ancient and modern histories, and the French language are taught in both.

Health.—The health of Leghorn compares favorably with any city of its size. The prevailing diseases are diphtheria, scarlet, typhoid, and typhus fevers. The winter months are supposed to be the healthiest for tourists, particularly near the Maremma, where fever prevails during the summer. There are very few citizens of the United States residing in the city, but there are several families in the district. Those residing here are mostly engaged in commerce, but during the summer months the American visitors outnumber all other nationalities. The general industrial conditions in Leghorn may be said to be flourishing, but in the fine arts there seems to be a stagnation.

VENICE.

Shipping.—During the year 1888 there arrived at the port of Venice 1,952 sailing vessels and 1,070 steamers, against 1,898 of the former and 1,123 of the latter for 1887. The gross tonnage for 1888 was 908,938, or 58,677 less than for 1887. The clearances for 1888 also fell short of the preceding year by 39,499 tons. Since the maritime basin was opened to traffic 4,087 ships with a tonnage of 2,237,904, have been moored there.

Notwithstanding this falling off in the entries and their aggregate tonnage (due to the withdrawal in part of the direct line of the Indian Peninsular and Oriental Company), the importation of merchandise into Venice was really increased, owing to the heavier cargoes and the increased importation by land carriage in 1888.

Imports and exports.—The merchandise imported and exported in 1888 by steamers and sailing-vessels amounted to 906,948 tons and by land and river transportation 920,447 tons, aggregating 1,827,395 tons, an increase of 243,412 tons over the quantity imported and exported in 1887. This result confirms the preceding report of Mr. Johnson, our consul at Venice, that the commerce of that port is steadily increasing, though to a limited extent. The estimated value of the imports was $42,726,142 and of the exports $36,933,966, aggregating $79,660,108, or $1,282,849 in excess of the values of the preceding year.

The movement of brandy, spirits, and wines was less than for 1887, both as to imports and exports, owing, in the case of brandy and spirits, to the very heavy tax and to the decline of the prices of wine, and in the case of the latter to the low prices of wines produced in southern Italy, which encouraged a general consumption in the Venetian and Lombard population. This consumption would have been far greater had it not been hindered by the high rates of transportation.

The importation of wheat amounted to 83,653 tons, being an increase of only 176.8 tons over the imports of 1887. This wheat was nearly all to supply the mills of the city and neighborhood. Prices were higher than in the preceding year owing to an increased duty. The demand for Indian corn was light, owing to the large crop of 1887. The imports and exports of sugar show a gain of 1,701.6 tons, owing to the fact that many refining establishments adopted Venice as a port of shipment for their products as well as for receiving their raw materials. There was also a large increase in the movement of coal due to the demand for local industries, the large drainage improvements now in progress in the Polisine, and to the growing railway consumption.

In various other articles of commerce there was a slight diminution, which, while pointing to a check in the usual progress of trade, contains no element of apprehension of its permanent decline. The constant extension of its facilities of communication, and the greatly increased conveniences offered to commerce by the imminent opening to traffic of the vast bonded warehouses and "Punto-Franco" now nearly completed, can not fail to mark the commencement of a period of rapid prosperity.

Breakwaters.—One of the great breakwaters, extending nearly 2 miles into the sea, is now nearly completed, and the corresponding one well advanced. When they are completed the port of Venice, now so difficult to enter for large ships, will be among the most accessible, *Industrial movement.*—The industrial movement is no less encouraging. Many important establishments have been founded within a few years. Twenty, at least, since 1887. This number, inconsiderable perhaps, for a great industrial center, with large manufacturing interests already existing, but full of hopeful significance for a place heretofore so utterly destitute of anything of the kind.

Exports to the United States.—The exports to the United States for the year amounted to $195,993, and consisted chiefly of hemp, straw goods, glycerine, furniture, and glassware.

Wages.—The wages of workmen are: for ordinary laborers, 10 to 40 cents per day; for skilled workmen, such as carpenters, masons, and stone-cutters, 60 to 80 cents per day; for those engaged in work requiring artistic skill, such as mosaic work, ornamental metal-work, carved wood and stone, from 40 cents to $2, or even $3 per day. Stevedores at times receive as much as $1.60 to $2 per day.

Women are engaged chiefly in the factories of matches, tobacco, and cotton, in lace-making, the manufacture of artificial flowers, bead-stringing, and of a certain kind of mosaic work. Meat generally is used by the working population of the city, though the agricultural population use very little.

Outside of factories there seems to be no fixed rule as to the number of hours for a day's work. Excepting the buildings for warehouses before referred to, very little has been done the past year in the way of building new houses, although quite a number of old palaces have been restored.

Tenement houses, as such, do not exist in Venice, and the poorer classes, with the exception of the island of the Giudecca, are confined to no particular locality, but are found in all parts of the city indiscriminately. Strikes are of rare occurrence in Venice and during the year none worthy of the name have occurred. The workmen, though enjoying few of the advantages possessed by those in larger cities, or in greater commercial centers, are in the main contented, and treated with great consideration by their employers.

In the Venice cotton-mill, known as the "Cotoniofloio Veneziano," there are employed one thousand persons, mostly women, at wages ranging from 14 to 80 cents per day. The hours of labor are twelve in winter and in summer eleven. In the steam flour-mill on the island of the Giudecca those employed in handling grain and the clerks in the office work twelve and a half hours per day, and those attending the machinery twelve hours. Work is carried on continuously day and night, excepting Sundays and the principal holidays. The employés, mostly men, receive from 62 cents to $1 per day. Workmen who are prevented from attending to their duties by reason of illness receive half-pay while ill.

Agriculture.—The condition of agriculture in the district is far from encouraging, owing to the lack of capital necessary to make farming a remunerative occupation, and to the scarcity of the better class of agricultural laborers who have been forced to emigrate owing to the conditions under which they were forced to exist.

Health.—The health of the district has remained good, there being no prevailing diseases, judging from the sanitary reports. The healthiest months for tourists are those of spring and autumn. The summer, owing to the heat and frequent "Sirocco," has a marked debilitating effect on those unaccustomed to this kind of climate, and the winter, owing to the dampness and intense cold, is unfitted for invalids, and especially for those having a tendency to rheumatic complaints.

Americans in Venice.—The number of tourists from the United States who visit Venice annually is very large, but there are no means of estimating the number. There are perhaps a dozen citizens of the United States, mostly artists, who are domiciled in the city.

No American vessel, except a vessel of war, has visited the port since our present consul has been at Venice.

NAPLES.

Financial crisis.—The southern part of Italy has not been as much affected by the financial crisis as the central and northern parts. The Giovanni Diana Bank at Barri, and the Banca Tiberina at Naples, at one time temporarily embarrassed, were enabled, with the assistance of the government, to resume operations shortly after their suspension. Business generally has been but slightly affected, and there has been no "building crisis." The president of the chamber of commerce of Naples expresses the following opinion:

> Fortunately we have had no crisis here in the true acceptance of the word. No doubt the echo of the crises, which have taken place elsewhere, have reverberated here in certain branches of business, but it did not materially affect the course of affairs on the local credit.

The vintage.—One of the most extensive dealers and exporters of Italian wines in the southern part of Italy, wrote to our consul at Naples as follows:

> The wine crop of this year is particularly small in the immediate vicinity of Naples. The districts in which comparatively the greatest damage has been done are those north and east of Naples, and include Pianura, Marano, Fratte, Maddaloni, Benevento, Avellino, Salerno, and Castellamare di Stabia. In these places hardly one-fourth of an average crop has been obtained. The results at Ischia, Pozzuoli, and the country east of Salerno were more favorable. The harvest in Cilento and Calabria was also satisfactory. Prices this year are considerably higher than last, and considerable quantities of wine have been brought here from Sicily. Since the French market was closed to Italian wines, much has been exported to South America, mainly to Montevideo, Buenos Ayres, and Rosario. During the past year large quantities were shipped to Switzerland, but this year the overproduction of South Italy will be consumed in its northern provinces.

Labor and wages.—As a rule Neapolitan workmen are industrious and sober. Persons under the influence of liquor are rarely seen. The regular hours of labor are from 7 a. m. to 6 p. m. in the summer, and till 5

p. m. in the winter, with one hour in the middle of the day for dinner. The wages paid are about as follows:

Carpenters:			
First class	per day..	$0.50 to	$1.00
Ordinary	do....	.40	.60
Masons	do....	.50	.60
Stucco workers	do....	.50	.75
Stone-cutters	do....	.50	.60
House-painters	do....	.40	.50
Blacksmiths	do ...	.33	.80
Tailors	do....	.40	.70
Shoe-makers	do....	.30	.60
Hatters	do....	.40	.80
Machinists:			
Working at the lathe	do....	.60	1.00
Fitters	do....	.60	1.15
Glass-blowers:			
Master blowers	per month..	$80.00 to	$115.00
Earth-handlers	do....		30.00
Helpers	do....		15.00
Ship carpenters	per day..	.60	1.00
Salesmen in stores	per month ..		25.00
Book-keepers in stores	do....		58.00
Cashiers in stores	do....		29.00
Cooks, males (average)	do....		20.00
Waiters	do....	5.00	15.00
Chambermaids	do....	4.00	10.00
Children's nurse	do....	4.00	5.50

Females are employed as teachers in the public schools, coral workers, in tobacco factories, glove factories, as fruit venders and hucksters, in telegraph offices, as water carriers and sellers, as household servants and nurses, and as sewing women. The highest wages paid them per day is for adults 40 cents and the lowest 10 cents. They work from ten to twelve hours per day.

The Neapolitan workmen are strong and powerful and are naturally healthy; but with the wages they earn it is impossible, of course, that they should indulge in many luxuries either as to clothing, food, or houses. The mildness of the climate favors them greatly in the matter of clothing, which, it is estimated, costs them from $5 to $10 per year. The rent for a room or apartment on the ground floor or basement varies from $1 to $5 per month. This one room, with its door opening on the street, is often both the workshop of the head of the family as well as the habitation of the entire family. For the purpose, possibly, of avoiding the tax on windows the door is usually the only opening for the entrance or light.

Cost of living.—The cost of living to the laboring classes is very low, most of the necessaries of life being abundant and cheap. The soil in the surrounding districts is very rich and produces a succession of crops in the same season both of vegetables and fruits. The province of Puglia produces grain for home consumption. Meat is so much of a luxury that it is seldom indulged in. The prices of the various kinds of provisions are about as follows:

Mutton	per kilogram ..	$0.20 to	$0.25
Beef	do....	.40	.50
Veal	do....	.60	.90
Pork	do....	.26	.40
Turkeys	do....	.26	.30
Codfish	do....		.12
Potatoes	do....	.02	.03
Peas (shelled):			
In summer	do....		.08
In winter	do....		.60
Fresh fish	per kilogram..	$0.20 to	$0.60
Macaroni, according to quality,	per kilogram	.07	.16
Bread, according to quality,	per kilogram	.06	.09
Tomatoes, according to quality,	per kilogram	.01	.04
Cauliflower	per head..	.01	.03
Cabbage	do....	.02	.04
Beans	per measure of 4 quarts..		.10

The fruits include apples, plums, peaches, pears, grapes, melons, figs, oranges, lemons, cherries, with several kinds peculiar to the vicinity, as well as berries of various kinds. Prices will vary from 1 cent to 4 cents per kilogram of 2.2 pounds. Oranges are often four for 1 cent, lemons three for 1 cent, and melons 2 cents each.

Chestnuts and walnuts are produced in immense quantities and constitute an important part of the food of the poorer classes. The average price of chestnuts is 4 cents per quart, and of walnuts five for 1 cent.

The prices of other provisions and supplies are as follows:

Coffee	per kilogram	$0.48 to	$1.20	Olives	per kilogram		$0.24
Tea	do	.70	1.20	Olive oil	per quart		.36
Sugar	do	.31	.36	Milk	do	$0.08 to	.10
Flour	do	.08	.12	Eggs	per dozen	.15	.24
Butter	do	.48	.70	Charcoal	per kilogram		.02
Cheese	do	.30	.70	Dried figs	do		.07
Salt	do	.07	.15	Wine of the country	per quart		.06

Duties.—As the duties and municipal taxes are continually increasing, so the prices of the necessaries of life are continually advancing. The following are a few instances of these charges:

Description.		Government.	Municipal.	Total.
On each ox		$8.00	$3.00	$11.00
On each cow		5.00	1.60	6.60
On each heifer over one year		4.40	1.60	6.00
On each hog		....	4.00	....
On fresh meat	per 100 pounds	2.50	1.25	3.75
On lard	do	....	5.00	....
On salt and smoked meat	do	....	5.00	....
On bread, rice, etc	per 50 kilograms	.40	.40	.80
On other articles of flour	do	1.60	.80	2.40
On coffee	per 100 pounds	....	4.00	....
On tea	do	....	4.00	....
On charcoal	do	....	2.88	....

Health.—There are no prevailing diseases in the city at any time of the year. Prior to the year 1887 the cholera made its appearance annually in the months of July, August, or September, either in a sporadic form or as an epidemic, but since then there have been no cases. Since the introduction of the Serino water in 1885 the sanitary condition has steadily improved, and there is no reason why it should not be one of the healthiest cities in Italy. It can therefore be recommended to tourists for every season of the year. While many prefer the summer to the winter season on account of the winter rains, the spring and fall months are the most enjoyable and better adapted for excursions in the picturesque surroundings of the beautiful Bay of Naples.

Americans in Naples.—There are but four American families residing in Naples, none of whose members are engaged in business. During the past four years but four merchant vessels of the United States have entered the port.

PALERMO.

Sulphur.—The sulphur industry, which is the chief industry of the island, has continued to decline, in common with agriculture and every so-called industry or product, save prices, which if anything augment.

Female labor.—Women are employed in the tobacco factories and in packing oranges and lemons, and receive from 17 to 40 cents per day of from eight to ten hours. Domestic servants receive from $3 to $5 per month and board, and without board from 30 to 40 cents per day.

Living.—The poorer classes live in the most wretched condition, the whole family often occupying one room, regardless of privacy or morals. The diet of this class consists of whatever they can get—macaroni, olives, oil, beans, rice, vegetables; rarely meat.

Strikes.—Strikes appear to be almost unknown, and certainly they are in the sense known to us. Their adoption by any class here who depend for a living "by the sweat of their brow" would only tend to make matters worse, as there is no organization or money with which to support strikers and their families during the period thereof. It would be worse than folly to attempt to imitate the United States and England in this respect.

Food prices.—The following table will show the cost of a few of the necessaries of life, from which there is no reduction, no matter how much may be purchased:

Macaroni	per kilogram		$0.10	Petroleum	per quart		$0.10
Bread	do		.10	Lard	per kilogram		.40
Butter	do		.75	Charcoal	per 100 kilograms		2.44
Cheese	do	$0.25 to	.50	Beef	per kilogram	$0.24 to	.60
Rice	do	.08	.12	Flour	do		.10
Potatoes	do		.02	Coffee	do	.58	.90
Beans	do		.05	Ham	do	.90	1.20
Sugar	do	.35	.40	Turkey	each	1.00	3.00
Poultry	each	.25	.50	Lamb	per kilogram		.25
Eggs	do	.02	.03	Rabbits	each	.34	.40

Education.—Palermo, with a population of about 250,000, has 368 schools or places of learning, all of which are free save a Government school tax, with an annual attendance, including those taught at home, of 29,877, viz:

Designation.	Schools.	Scholars.	Designation.	Schools.	Scholars.
Elementary	324	17,763	Art schools	1	145
Lyceums	2	423	Foreign languages	1	256
Gymnasia	3	726	Evening schools	2	380
Technical	4	783	For the blind	1	21
Normal	2	180	Government schools	1	91
Mercantile marine	1	107	Private institute	20	2,000
Professional technical	1	244	University	1	538
Special	2	38	Musical school	1	56
Female	1	126	Taught at home	....	6,000

61.65 per cent. of the population can neither read nor write.

Industries.—There are no industries meriting the name save a small glass factory, a soft soap factory, a tobacco factory, and a few ice manufactories on a small scale.

Emigration.—Emigration to the United States during the year amounted to 5,070, the causes whereof being apparant to any one cognizant of the rate of wages and the prices of the necessaries of life.

Public health.—The prevailing diseases are intestinal catarrh in summer or in the warmer months, pulmonary consumption in the winter or rainy season, and heart disease and rheumatism at all seasons. Cholera is liable to occur at any season. The climate is very damp. Many persons prefer the summer months, but for tourists those beginning with October and ending in May or June are the most desirable, October, April, and May being the best.

Americans in Palermo.—There are but three citizens of the United States in Palermo known to be such, one of whom is a large clothier, another a furniture dealer, and the third is only on a visit. There are, however, seven or eight who claim to be citizens. From two to three hundred visit the island annually.

Wages.—Laborers receive from 40 to 50 cents per day in the city. Farm laborers receive from 25 to 34 cents per day; the day of the former being from eight to ten hours, and of the latter from sunrise to sunset.

MESSINA.

Wages.—For the consular district of Messina, consisting of the provinces of Messina, Reggio, and Catanzaro the wages of agricultural laborers are as follows: Men, per day, 34 cents in winter; 28 cents in summer. Boys, per day, 13 to 20 cents in winter; 10 to 13 cents in summer. These peasants work from nine to ten hours per day in winter and from eleven to twelve hours in summer. The summer work is lighter than the winter work. But few women work in the fields as day laborers. In the mountains they weed the grain crops at 12 cents per day, they also gather the grapes throughout this district, for which they receive, as a rule, their food, of bread and onions, and a small quantity of grapes at the end of the vintage. When paid in cash for their work they get 10 cents per day. During the autumn and winter-months several hundred are employed in the city of Messina to sort and wrap oranges and lemons in paper for export, for which they are paid 21 cents per day; girls 15 cents per day.

The house industries in this city are sewing and knitting. In Calabria the silk-worms are reared by the women.

Throughout this district the laboring class is badly housed, families of ten and twelve being crowded into one badly ventilated room. In most of the towns and villages there is a lack of good drinking water and proper drainage. The food of the laboring class consists of vegetables. fruit, a very little meat, and fish, which are abundant on the coast, Strikes are unknown and socialistic ideas have gained no foothold here. The laborers are industrious, frugal, and contented.

Masons	per day..	$0.60 to	$1.00
Carpenters	do....	.80	1.00
Type-setters	do....	.40	.60
Printers	do....	.80	1.00
Millers	per day..	$0.60 to	$1.00
Road-makers	do....	.40	.60
Painters	do....	.60	.80

The hours of labor are from sunrise to sunset, with one hour out for dinner in the middle of the day. In service, the wages of railroad employés are from $145 to $430 per year. Railroad conductors, workmen and porters receive from $115 to $415 per year.

The employés of the Italian General Steamship Navigation Company are paid per month as follows:

Boatswain	$24.00	Head steward	$28.00
Boatswain's mate	19.00	Head cook	28.00
Carpenter	19.00	Second cook	19.00
Steersman	12.00	Third cook	12.00
Sailors	7.00	Fourth cook	8.00
Firemen	21.00	Baker	10.00
Boiler-makers	20.00	Steward	10.00
Stokers	18.00	Pantryman	8.00
Trimmers	13.00	Stewardess	12.00

The wages of hotel servants are as follows: Head waiter, $20 per month and food; waiters, $16 per month and food; "boots," $8 per month and food. Servants in families receive: Male, from $6 to $8 per month; females, from $4 to $6; porters (at the door), $8 to $12 per month without food.

The following are the average market prices of provisions in Messina:

Beef, tenderloin	per pound	$0.28	Potatoes	per bushel	$0.90
Beef, soup pieces	do	.20	Rice	per pound	.07
Mutton	do	.20	Flour	per barrel	$10.00 to 12.00
Lard	do	.22	Eggs	per dozen	.18 .24
Butter	do	.24	Cow's milk	per quart	.12
Cheese	do	.24	Goat's milk	do	.10

Technical schools.—There are eleven technical schools in the consular district of Messina, of which there are in the province of Messina five that are supported by the Government, one supported by the municipality of Milazzo, and one by the town of Barcellona. In the province of Reggio and in the province of Catanzaro there are two each.

The technical schools supported by the Government are practically free, each scholar paying annually a fee of 10 francs for three years, plus a gratuity of 15 francs.

The course is for three years, and includes the following branches: Italian, French, arithmetic, book-keeping, elementary algebra and geometry, drawing, penmanship, geography, history, and the elements of natural history. In addition there are technical institutes of a grade higher than the technical schools. The course here is also three years, and the annual fee 15 francs, with a graduating fee of 30 francs. There are three technical institutes in this district—a Government technical and nautical institute in Messina, and a Government technical institute each in Riggia and Cantanzaro. The branches taught are: Italian literature, history, and geography, English and German administrative and commercial law, political economy, book-keeping, chemistry, physics and elementary mechanics, algebra, plane and spherical trigonometry, drawing and the elements of descriptive geometry, land surveying and natural history.

In the nautical institute the following additional branches are taught: Commercial and maritime law, elements of hydrography and hydrographical drawing, the steam engine, navigation, and nautical astronomy.

Industrial situation.—The factories have been running with a full complement of hands during the year, and have averaged fully two hundred and seventy-five working days. The crops throughout the district have been fair.

Emigration.—In Calabria, and especially in the Province of Catanzaro, large tracts of lands are held by a few noblemen, who are unable or unwilling to improve their estates. Hence, the peasant finding no chance of bettering his condition, willingly emigrates. In the Province of Messina the land is greatly subdivided, and on that account the Sicilian is very slow to emigrate.

Octroi duties in Messina.

		Francs.
Wine	per hectoliter	10.50
Vinegar	per bottle	.25
Beef	per quintal	18.75
Lard and salted meats	do	37.50
Flour and bread	do	8.50
Cod-fish	do	15.00
Grapes	per quintal	6.30
Alcohol	per hectoliter	12.00
Cheese	per quintal	18.00
Sugar	do	15.00
Coffee	do	20.00

Health of Messina.—The prevailing diseases are diphtheria among children, and bronchitis among adults. The average mortality is about 25 per 1,000 inhabitants. The greatest number of deaths are in March. During the rainy season—November, December, January, and February—it is very damp and trying to those suffering from lung troubles and rheumatism. The temperature changes four times each day with the tidal currents, and winds prevail throughout the year. Sicily is seen to the greatest advantage during April, May, and June. September and October are the months when the sirocco prevails.

Financial condition.—The financial situation for the year ending June, 1889, has been unhealthy, owing to the decline in prices of wine and lemons and the unfortunate credit system inaugurated by the "Banca Nazionali" and the "Banco di Sicilia." In order to stimulate production, and thereby hasten the resumption of specie payments, which was effected a few years since by means of a foreign loan, these banks, as well as other large banks in Italy, established agents in all small provincial centers, who, upon proper security, discounted notes, which the banks in turn re-discounted for them at three-fourths per cent. below the regular bank rate. Landholders were thus enabled to obtain advances for the improvement of their property. Improvements were made on lands and buildings, and manufactories were started on a credit basis. The bank-note circulation soon exceeded the limit prescribed by law, and gold was once more at a premium. Whereupon the Government ordered the banks to reduce their circulation, to do which they were obliged to call in their loans. Many failures ensued, and then, owing to the abrogation of the commercial treaty between France and Italy, the price of wine fell, whereby many landowners who had planted large vineyards were unable to meet their notes. Lemons also fell in price, and real estate in the rural districts has declined during the past two years fully 50 per cent. in value.

The bank rate of interest for the past year has been 5 per cent. on notes and 6 per cent. on advances. The rate of interest in the open market has varied from 4¾ to 7 per cent. on good ninety-day paper. Exchange on Paris has fluctuated from 100.20 to 101.50; say one-fifth to 1½ per cent. premium on gold.

CATANIA.

Mines and mining.—As regards mines and the sulphur industry this consular district is the most important in Italy. It comprises the provinces of Catania, Syracuse, and Caltanissetta, where there are about 271 sulphur mines, 45 of which are in the province of Catania and 226 in the province of Caltanissetta.

Some of the mines are closed and have not been worked for the last few years, for the reason that the sulphur trade in Sicily has never been so depressed as now. The disastrous condition of the money market has materially contributed to ruin this very important branch of Sicilian industry. Unless some measures are taken to revive this trade it will no longer form one of the great resources of the country.

Curiously enough, however, the demand for this article from foreign markets continues much the same as in former years. In fact, there were exported from the port of Catania 3,644 tons more during the last year than in the year preceding. It must, therefore, be inferred that the depression is due to other causes than an absence of demand, and may be attributed to the great deficiency of capital in Sicily both in working the mines and in regulating the market for sulphur, which is entirely at the option of the very few speculators of large means who are able to impose their own terms on the hard-pressed for money producers.

Agriculture.—The wine, fruit, and sweet-oil trade is another important industry in this consular district. The prices of these articles have also materially declined, but even at the low prices ruling it is very difficult to secure orders for export. The fruit trade feels severely the Spanish and the American competition, while the wine and sumac trade are correspondingly depressed by the loss of France as a customer since the abrogation of the commercial treaty with Italy.

Wine is produced very largely in this district, though none is exported to the United States. As the annual production is upwards of 52,000,000 gallons, it is easy to see that the war tariff with France, who was the chief consumer of Italian wines, has been the cause of serious and widely spread losses.

The production of oil amounts to upwards 800,000 gallons. There are nearly 1,750,000 orange and lemon trees, producing more than 450,000,000 fruit annually. The other agricultural products are chiefly beans, rice, corn, seeds, dried fruits, and sumac.

The following comparative table of prices for 1887 and 1888 will show the great decline in the value of agricultural products:

Articles.	1887.	1888.	Free on board.
Olive oil	$17.40 to $18.00	$11.60 to $13.00	Per 220 pounds.
Wheat	5.00 5.20	4.60 4.80	Do.
Lemons	1.60 2.40	1.20 1.60	Per 1,000 pounds.
Wine	6.00 7.40	3.00 4.00	Per 100 liters.

Catania, with a population of 107,000, is the residence of a large number of landlords, who derive their incomes from the slopes of Etna to the north, and from the fertile lowlands stretching to the south and west, watered by the River Simeto. At one time the province was said to produce one-sixth of the whole quantity of wheat grown in the island, in addition to large crops of rice, corn, cotton, and other products. But now, owing to the competition of the eastern States of Europe, the cornfields have been turned into vineyards, and the cultivation of wheat has been diminishing every year, so that wheat is now imported to supply the home demand, while formerly it was exported to continental Italy and the north of Europe at prices very remunerative to the producers.

Financial conditions.—Owing to the failures of several large houses in the province and to the unsatisfactory conditions of every branch of industry and trade, credit throughout the district is much impaired. The "Banca Nazionale" and the "Banca di Sicilia," the largest banking institutions on the island, have greatly reduced their line of discount, causing thereby a very great stringency in the money market and very serious consequences among merchants. The smaller local banks have endeavored to supply the deficiency, but are now themselves in a critical position, owing to the inability of merchants to pay maturing drafts.

Labor.—The rates of wages varies according to the ability of the workmen, and are about as follows:

Common laborers, for ten hours' work, 30 cents per day; artisans, from 40 to 60 cents; boys and women, from 10 to 20 cents.

Meat is very seldom used by working people, and probably by not over one-third of the population. There seems to be a general discontent with the rate of wages, but no strikes have occurred of late years.

Living is cheaper than in the United States, with the exception of meat, flour, sugar, lard, coffee, and petroleum. The following table will show the cost and the city duty on the principal articles of food.

Articles.	Per kilogram.	City duties, per kilogram.
		Cents.
Bread	6, 7, and 8 cents	1
Maccaroni	6, 8, and 9 cents	1[illegible]
Meat	30, 34, and 42 cents	2[illegible]
Lard	35 cents	3[illegible]
Flour	7, 7, and 8 cents	1[illegible]
Rice	14 cents	[illegible]
Sugar	31 and 36 cents	1
Tea	$2.50	8
Potatoes	2 cents	....
Eggs	18 cents per dozen	....
Cheese:		
Sicilian	30, 32, and 45 cents	8
Swiss	50 cents	4
Italian	40, 70, and 80 cents	4
Petroleum	50 cents per gallon	1[illegible]
Wine	20 and 30 cents per gallon	*2

* Per gallon.

Fruits and vegetables are very cheap, much cheaper than in the United States.

TREATIES.

The following conventions, treaties, decrees, and agreements relating to commerce and navigation have been made since the date of the last annual report:

A general customs tariff, approved July 14, 1887, and modified by the laws of November 27 and December 15, 1887, went into effect January 1, 1888.

A new treaty of commerce with Austria-Hungary, signed December 7, 1887, became a law December 25, following, and took effect at the beginning of 1888.

The treaties of commerce with Spain, Switzerland, and France were by royal decree of December 30, 1887, extended to March 1, 1888. The treaty with Spain was extended to May 1, 1888, and a new treaty concluded February 26, 1888, which took effect April 30 following, and will expire February 1, 1892.

A new treaty of commerce with Switzerland was signed at Rome, January 23, 1889, took effect April 15, 1889, and will remain in force until February 1, 1892.

A new treaty with France not having been concluded, Italy applied discriminating duties to imports from that country and its colonies February 20, 1888. These discriminating duties, however, were abolished early in January, 1890.

A treaty of commerce and navigation between Italy and Greece was concluded April 1, 1889, and ratified at Rome April 16 following.

The treaty of commerce and navigation between Italy and Nicaragua was, by agreements of December 14 and 24, 1888, and January 21, 1889, extended to March 22, 1890.

SHIPPING BOUNTIES.

By article 20 of the law of July 14, 1887, approving the new customs tariff, the government was authorized to increase shipping bounties to constructions in Italy already fixed by the law of December 6, 1885, in proportion to the increase of duties. A royal decree, recently confirmed by law, has established these bounties as follows:

For construction of sailing and steam vessels of iron and steel......per ton..	$3.28
For sailing vessels of wood......do....	4.86
For (*galligianti*) other vessels, such as transport boats, tugs, cistern-boats, launches etc., of iron and steel	1.36
For marine engines per horse power	4.86
For marine boilers and repairs thereto (for every 220$\frac{464}{1000}$ pounds	.58

The same bounties are allowed for the construction of *galligianti* of iron and steel for the navy and other government departments.

Besides bounties for construction of new ships, apparatus, and auxiliary machinery in Italian ship-yards, the above named royal decree accorded the following bounties:

For war-ships of iron or steel	per ton	$9.65.4
For marine engines of iron and steel	per horse-power	1.64.4
For marine boilers for war-ships and repairs to boilers already constructed in Italy	per $220\frac{464}{1000}$ pounds	1.83.7
For apparatus and auxiliary machinery	per $220\frac{464}{1000}$ pounds	2.12.3

Bounties for construction in 1888.—In 1888 applications were made for the payment of bounties for the following constructions of that year: Sailing vessels (bounty $3.28 per gross ton); small fishing smacks, 64; fishing boats, 44; fishing and trading boats, 15; Venetian fishing smacks, 12; small brigs, 11; brigantines, 8; navicelle, 5; cutters, 2; Bovi, 2; brigantine, 1; felucca, 1. Total, 165.

Steam-vessels of wood and steel (bounty $14.86 per gross ton);

Sailing vessels in iron and steel (bounty $14.86 per gross ton): Ships, 4; small brigs, 1; brigantines, 2. Total, 7.

Galligianti, of iron and steel (bounty $7.24 per ton); transport boats, 28; *bal*, 22; boats and steam launches, 9; tugs, 6; cistern boats, 4; bette, 2. Total, 71.

Marine engines and boilers (bounty for engines $1.64.4 per horse-power, for boilers, $1.83.7 for every $220\frac{464}{1000}$ pounds.) Engines and boilers, 33; boilers, 21; engine, 1. Total, 55.

The royal navy launched one pontoon boat and built three engines and three boilers. Apparatus and auxiliary machines (bounty $2.123 for every $220\frac{464}{1000}$ pounds); engines, 6; boilers, 21; capstans, 2. Total, 29.

Up to December 21, 1888, the Government had paid $48,354.03 for constructions made in the year as follows:

For constructions in wood	$15,406.05
For constructions in iron	21,756.70
For engines (motors $4,080.21, auxiliary $2,935.92)	7,016.13
For boilers	3,507.39
For auxiliary apparatus	667.78
Total	48,354.03

Repairs to vessels (hulls, engines, and boilers).—In 1888 320 applications were made for bounties for repairs to sailing vessels of wood (change of sheathing of copper, yellow metal, and zinc). Seventy-seven were for repairs to marine boilers of Italian construction, 36 for repairs to marine boilers of foreign construction, 26 for repairs to engines, 40 for repairs to engines and boilers, 23 for repairs to engines and vessels, 17 for repairs to boilers and vessels, 40 for repairs to iron hulls, 26 for miscellaneous repairs—a total of 285—from which it seems that 35 applications were either not passed upon or were rejected.

The total amount paid for these repairs was as follows:

For hulls	$31,724.76
For engines and machinery	4,772.50
For boilers	17,387.95
	53,885.21

In 1888, 99 sailing vessels, aggregating 53,511 tons, and 8 steamers, aggregating 12,098 tons, were engaged in bringing coal into Italy from England, Holland, and Belgium. The total of coal thus brought, upon which a bounty was claimed, was 162,174 tons, of which 90,794 tons were brought in sailing vessels and 71,680 tons on steamers. The premium paid for this service was $31,357.48, against $33,444.78 in the year preceding.

In 1888, 25 steamers received premiums for navigation aggregating $205,841. The details relating to the voyages of these steamers were as follows:

Ports or countries—		No. of voyages.	Tons of merchandise carried.	Passengers carried.	Miles run.	Amounts of premiums won.
Of departure.	Of arrival.					
Europe.	*United States.*					
Catania	New York	5	6,394	1,574	21,515	$3,747
Porto Empedoclo	do	2	3,330	598	8,321	1,441
Naples	do	1	1,615	246	4,172	779
Palermo	do	1	1,144	39	4,114	946
Messina	do	1	5,000	1,324	4,221	1,789
Katacoto	do	1	1,732	206	4,500	730
		11	19,415	3,987	46,753	9,432
United States.	*Europe.*					
New York	Genoa	3	6,050	436	12,110	2,001
Do	Leghorn	3	5,020	373	12,165	2,242
Do	Palermo	2	2,040	294	8,228	1,707
Do	Lisbon	1	2,300		2,953	486
Do	Cardiff	1	2,070		2,981	527
Norfolk	Liverpool	1	4,500		3,204	1,362
		11	21,980	1,103	41,641	8,326
Europe	South America	54	57,233	55,020	328,905	83,607
South America	Europe	55	37,297	11,220	328,733	79,858
Europe	South America	6	7,085	6,601	56,352	12,465
South America	Europe	1	1,300	10	9,372	1,651
Europe	Asia	3	2,224	163	14,898	3,965
Asia	Europe	2	9,000	162	8,930	3,436
Europe	Africa	1	176	16	2,486	170
Africa	Europe	1	67		2,486	170
South America	North America	1	900		5,112	2,172
Asia	Oceanica	3	2,440	106	3,984	352
Oceanica	Asia	2	2,000	2	2,685	237
Total		151	161,117	78,390	852,337	188,088

Of these voyages a part only were made direct from the first port of departure to the final port of destination.

The figures relating to freight carried refer both to quantities embarked at original port of departure and at intermediate ports.

Sailing vessels.—In 1888, premiums for navigation were paid to 361 sailing vessels making 800 voyages, carrying 617,068 tons freight, and sailing 4,962,178 miles, aggregating $————.*

Of the sailing vessels, 133 voyages with 81,171 tons of freight were made from Europe to North America, and 176 voyages with 135,318 tons of freight from South America to Europe.

AUGUSTUS O. BOURN, *Consul-General.*

UNITED STATES CONSULATE-GENERAL,
Rome, March 19, 1890.

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* Amount not given by the Consul General.

TRADE AND PRODUCTS OF CATANIA.

REPORT BY CONSUL LAMANTIA.

SICILIAN DECADENCE.

Sicily, this beautiful land, once the richest part of Italy, may now be freely said to have become the poorest. Owing to the mineral and agricultural production, up to a few years ago this island lived in a state of enviable wealth, but unfortunately this happiness and prosperity gave away to a crisis which has kept it in a very critical state of affairs.

By natural progress in every branch of industry the production has increased to a large extent, while the consumption has decreased gradually, thus reducing the prices, owing to the competition of other countries. Free exchange having been shut up with France, the immense wine production has partially remained in store, thus checking the commercial life. In fact, the Island of Sicily so rich of wines, of sweet oil, sulphur, green fruits, and sumac has found no outlets for the large production of said articles, which really constitute the principal resource of the country, as well as the life of land owners, and with them that of a numerous class of laborers.

Not many years ago the owner of a sulphur mine was considered to be a rich man, for he derived out of it very large profits. But then sulphur was in great demand, and the prices keeping steady, the owner was induced to invest his capital, being certain to cash them soon again. One mine afforded sufficient work to improve one of those villages the people of which live solely on this industry. By the introduction of mechanical work in the mines, the production having increased during the last years over the consumption, prices have gone considerably down, reducing the capital invested thereupon, and some owners finding it unprofitable to continue the work, have closed the mines, thus causing misery to thousands of poor working families.

This sad state of things does not relate to mining only, but even to agriculture, which has likewise gone through a crisis, bringing misery to another class of workmen. In small country places, as well as in many large towns, there is not a single family which does not owe its livelihood to agriculture, and therefore it will not be difficult to understand that when the products remain unsold the land owner can not find the means for living, but he can not, as well, provide any means for raising the production of the next year.

GREEN FRUITS.

The orange and lemon industry is certainly not much better, for an idea can hardly be given of the great sacrifices which have to be borne in planting out an orange or lemon grove by people who have not at hand the required capital the interest on which they can do without for a certain number of years. The production of such a grove can be obtained only after ten years of care and steady expense for pumping the irrigating waters, as well as for the culture itself. But land owners went heart and soul in to such an undertaking, as they well knew they would derive large profits thereby from the sale of the product, which is now more than the consumption, and therefore unprofitable.

This trade continues to render little profit, in view of the low prices ruling in foreign markets for these important products, and although their cultivation has reached in this district a very significant scale, the proprietors are anything but satisfied, for in many cases it scarcely pays to gather the fruit, especially so in the case of lemons.

As above stated, this branch of culture is one of those most important in this province, and from overproduction and the competition of other countries, the production of which have overstocked those markets once monopolized by Sicilian fruit exporters, prices have fallen steadily to such rates as to cause the failure of several firms concerned in the trade.

Unless, therefore, these producers look for, or force other outlets to dispose of said product, it is my opinion that by the annual increasing production in Spain, Greece, Portugal, and especially so in Florida, Louisiana and California, if not lemons, the Sicilian orange culture in the course of twenty years will be reduced to nothing. My belief is based upon the fact that no matter how delicious an orange may be, when we consider that it is to be gathered one month before its full maturity for the export trade, it is easy to comprehend that it can not possess that natural, delicious aroma when eaten, as those gathered in the United States when fully ripe, or when to be consumed.

The total declared fruit exports from this city to the United States was 150,989 boxes, against 191,201 in the previous year, a decrease of 40,212 boxes.

I may here note, that since the abolition of the customs duty on this article by the Austrian Government, it seems that the export trade from this Island is increasing towards Trieste, as shown by the following table for the last four years, which is taken from the "Relazione e Statistica sul Commercio degli Agrumi per l'anno 1888-'89."

Boxes of oranges and lemons exported from Sicily to Trieste.

From—	1885-'86.	1886-'87.	1887-'88.	1888-'89.	Total.
Catania	333,875	383,895	411,170	464,809	1,593,549
Messina	97,306	99,036	157,013	226,107	579,542
Palermo	5,325	5,626	7,472	51,747	70,170
Total	436,596	488,557	575,655	742,663	2,243,261

SUMAC.

The sumac industry is in about the same condition for the reason that not long ago a great number of land owners, induced by the good profits derived from sumac culture, turned into this branch of industry large tracks of hilly grounds which had previously been left idle for grazing purposes. When the time arrived in which they expected to derive the compensation for their labor, soil and expense, all the rosy hopes had to be given up, as the market prices did not cover the interest on the capital invested.

A partial improvement, however, in general business was during the latter part of 1889 sufficiently marked to induce a large section of business men to look forward to a greater extent of revival in trade and industry in this district. The chief causes which had determined a serious crisis in the preceding year have to a certain point remained, and, although many still complain that the times leave much to be desired in the general aspect of things, there is cause to be satisfied. The commercial, agrarian, industrial, and financial crisis that affected so much the province of Catania in the years 1887–'88 caused much depression in trade at large, which more acutely touched both agricultural and industrial products, such as wine, lemons and oranges, sulphur, and other articles forming the principal resources of this district.

The last twelve months, however, have shown a salutary inclination in the interchange of these articles, although it can not positively be acknowledged that the district is regaining that prosperity that ten years ago seemed to prevail throughout this province.

SULPHUR.

As far as sulphur is concerned, it will be seen that the exportation underwent a decrease of 122,890 cantars, as compared with 1888; but the demand for this article became active about the latter part of December for shipments in January and February of the present year.

These of course will appear in the returns for the next twelve months, but properly speaking were transactions effected in 1889. Prices of this article are certainly improving; in December last the demand became stronger.

As stated in a previous report, sulphur is looked upon as the most important and conspicuous of Sicilian products, and forms the essential resource of the island, being exported to all parts of the world.

I may here add, in the interest of whom it may concern, that in a letter just published by Professor Travaglia, an authority on sulphur mines, and chief engineer of the mining school of Caltanissetta, a gentleman who has always furnished me with the official data of the entire production and sulphur export from this island, it is stated that the total exportation was during the first quarter of the present year, 116,121,549 kilograms, against 101,523,519 kilograms in 1889, an increase of 14,598,030 more than last year in the same period of time. It is also stated that the production of this mineral has of late somewhat diminished, on account of the copious rain-fall which came down at intervals during last winter, making it impossible to work the mines, which have been absorbed with water, thus shortening the production. It is therefore believed that sulphur will this year have a better market, as it can not meet the general demand.

The total export was during the year 4,562,827.56 cantars, against 4,480,291 in 1888, an increase of 82,536.56 cantars, as shown below:

Sulphur export from Sicily in 1889.

Countries.	From Girgenti.	From Catania.	From Licata.	Totals.
	Cantars.	*Cantars.*	*Cantars.*	*Cantars.*
United States	944, 957. 34	165, 385. 11	309, 695. 00	1, 420, 037. 46
France	421, 638. 36	102, 783. 52	345, 450. 00	869, 871. 88
Italy	63, 158. 90	399, 815. 71	101, 568. 00	564, 542. 61
Great Britain	213, 200. 00	255, 946. 92	18, 200. 00	487, 346. 92
Other countries	272, 798. 72	560, 303. 98	387, 926. 00	1, 221, 028. 70
Total	1, 915, 753. 32	1, 484, 235. 24	1, 162, 839. 00	4, 562, 827. 56
Total in 1888	1, 847, 350. 00	1, 607, 125. 00	1, 024, 816. 00	4, 480, 291. 00

Although the United States lost 205,618 cantars, still her total import was greater than any large market and of many others put up together.

INDUSTRY.

Industries continue to be carried on much the same as in former years, with no sign of any new feature arising. The financial position of both commune and province is anything but flourishing; indebtedness is fast increasing. Local taxation on all commodities is heavy, consequently the development of industrial investments can not find easy openings.

A new system of fusing sulphur, however, requiring no heavy expense of plant and fusing and no skilled assistance, has lately been introduced by Señor Leon Gil y Ruiz, engineer of the royal corps of engineers in Spain, who first introduced it in the mines belonging to a company in Almeria, Spain, where, after several trials, it attained a brilliant success.

Señor Gil came to Sicily last autumn seeking a larger field of operations for his invention, and, in fact, at his own expense planted one of his furnaces on the "Muglia" mine, where, in December last, several experiments took place, resulting in a saving of sulphur of 29 per cent., as compared with the old mode of fusing through the "Calcherone." Mr. Gil's system will undoubtedly be of great value to the trade.

It may be here mentioned that in England in recent years an idea has found its way that Sicilian sulphur is sooner or later doomed to be cut out from foreign markets by the competition it will have to face against the late chemical inventions, which show that the recovery of sulphur from the old refuse of chemical alkali works in the north of England is now so far advanced that it would enable the English producer to entirely cut out the Sicilian sulphur.

The invention above mentioned is that called "the Chance process," which has been at work at Newcastle-upon-Tyne for a considerable time; still Sicilian sulphur as regards quantities exported has not suffered from it. Professor Travaglia attaches no importance to Chance's process for obtaining sulphur, and he doubts not that the Sicilian production will still have a market.

THE PORT.

The city of Catania is situated in the gulf of the same name, which, properly considered, can be said to be comprised between Cape Santa Croce and Cape Molino, the one distant from north to south about 18 miles from the other, at the east slopes of Etna.

The length of the bay is 5 miles; the ground from the south to Catania light-house is sandy, and from the light-house turning north toward the city is almost entirely surrounded by black lava, giving it a gloomy sort of appearance.

Catania possessed in olden times a harbor well known as Il Porto d'Ulisse, but according to Virgilius, owing to the many eruptions from Etna, which altogether altered the topographical aspect of the city, it lost all that beauty of scenery that nature had bestowed on it, destroying its former port and checking its commercial shipping resources. A second harbor was constructed in 1601, which was completely carried away by a memorable storm before it could be finished. In 1634 the works of that same harbor were resumed with strong efforts, but even this new trial proved fruitless, the sea having once more played its ravages.

Catania thus remained without any sort of shelter for vessels up to the year 1782, when the still existing old harbor was raised; but two years after it was partially destroyed by storms, and it was only in 1842 that a Maltese engineer, named Giuseppe Zhaara, recommenced under better auspices and means of construction those works, and so completed the small inner harbor, which can be seen up to the present time.

In 1872 the increasing commercial development of Catania demanded a more spacious and a safer harbor, and it was at that time that the present port was started, and now can be said to be completed, offering good and efficient shelter to any sized vessel.

The following particulars may be found useful as general information as regards the inner or old harbor: Depth of water, maximum, 7 meters; minimum, 3 meters. Depth along the quay, maximum 8 meters; minimum 3.40 meters.

The quays, with landing places, have an extent of 430 meters, with draught of water as follows:

Two hundred and forty meters, with 7 to 8 meters of draught; 102 meters, with 3.50 meters of draught opposite the custom-house; 58 meters, with 2 meters of draught within the dock.

The zone for mooring is about 200 meters, and the entrance or mouth of the harbor measures 400 meters wide.

Data of the new harbor.—Total length, 1336 meters; capacity or size for commercial operations, 83.004 cubic meters; size of the outer harbor, 428.148 cubic meters; draughts along the quays, 7 cubic meters; depth of basin, inner part, 8 to 15 meters; depth of basin, outer part, 12 to 17 meters.

The wharves have a length of 60 meters, and a breadth of 25, the distance from each extremity of the two wharves measures 220 meters.

The width of entrance of the outer harber measures 700 meters.

There is no tide worthy of mention in Catania harbor.

The winds affecting most the port of Catania, and which sometimes raise inside of it a heavy, nasty sea, are the south and the southeast winds. The northeast wind also raises a strong and dangerous strain.

VINCENT LAMANTIA,
Consul.

UNITED STATES CONSULATE,
Catania, May 7, 1890.

TRADE AND COMMERCE OF MALTA.

REPORT BY VICE-CONSUL EYNAUD.

I have the honor to submit the shipping and commercial statistics of the port of Malta for the year 1889; also remarks on the trade of this place.

From January 1 to December 31, 1889, the following were the arrivals and departures:

MEN OF WAR.

Nationality.	Arrived.	Sailed.
British	128	135
German	7	7
Austrian	3	3
French	2	2
American	2	2
Other nations	7	8
Total	149	157

STEAM AND SAILING YACHTS.

English	34	35
American	3	3
Russian	1	1
Austro-Hungarian	2	3
French	1	1
Total	41	43

MERCHANT STEAMERS.

Nationality.	Arrived.	Tons.	Sailed.
British	3,631	4,644,595	3,604
Italian	173	93,889	172
German	125	103,059	125
French	118	114,624	118
Norwegian	97	91,271	97
Austro-Hungarian	43	86,732	43
Greek	42	41,074	42
Ottoman	25	23,917	25
Swedish	15	10,906	15
Danish	11	9,917	11
Dutch	10	8,384	10
Belgian	9	11,339	9
Russian	4	1,708	4
Spanish	4	4,086	4
Total	4,307	5,195,501	4,279

MERCHANT SAILING VESSELS.

Italian	832	34,560	821
Greek	233	42,732	230
English	162	13,039	169
Ottoman	63	6,339	73
Montenegrin	10	1,306	8
Tunisian	8	279	9
Austro-Hungarian	7	2,280	5
Portuguese	2	331	2
Norwegian	2	524	2
Danish	1	434	1
Swedish	1	692	1
German	1	868	1
Russian	1	517	1
Total	1,323	103,401	1,323

PASSED IN SIGHT OF THE ISLAND.

British steamers	693	Norwegian steamers	2
German steamers	21	Danish steamers	1
Dutch steamers	3		
French steamers	3	Total	723

RECAPITULATION.

	Arrivals in 1889.		Arrivals in 1888.	
	Arrived.	Tons.	Arrived.	Tons.
Men of war	149	....	153	....
Steam and sailing yachts	41	....	87	....
Merchant steamers	4,307	5,195,501	4,341	5,134,098
Merchant sailing vessels	1,323	103,401	1,532	125,749
Total	5,820	5,298,902	6,063	5,259,847

The number of military and civilian passengers was, in 1889, about 49,908, and in 1888 about 62,563.

Importation of coal from January 1, *to December* 31, 1889.

	Tons.
From South Wales	498,753
From the Mersey	27,555
From the north of England	91,391
Total	617,699

As against a total importation in 1888 of 589,071 tons.

The trade of Malta was not restricted by the imposition of quarantine on any country, consequently the shipping statistics and importation of coal in 1889 show good results. Included in the foregoing arrivals are two United States men of war, viz, the *Essex* and *Quinnebaug*, two American sailing yachts, and one steam-yacht.

Two sailing vessels came in from Philadelphia with cargoes of petroleum for Malta, and discharged here.

Twenty-one steamers put into Malta, all with cargoes excepting three, from ports farther east and bound to ports in the United States. Ten steamers from ports in the United States with cargoes called here, and proceeded with the same cargo farther east. Three steamers left in ballast to proceed to other Mediterranean ports to load for the United States. One sailing vessel left in ballast to load for the United States. Two sailing vessels with cargoes put into Malta from the United States, and left for ports farther east with the same cargoes.

AMERICAN LEAF TOBACCO.

The imports in 1889 were nearly all low fillers and damaged tobacco. These sold at miserably low prices, mostly on account of the small demand by larger manufacturers, who said they could not find a sale for their cigars. Consequently prices declined to the lowest. Then dealers would not pay remunerative prices for the better classes of leaf tobacco.

The following are the particulars of the importation of leaf in 1889, viz:

	Hogsheads.	Cases or bales.
From or via France	304	162
From the United States	123	5
From or via England	318	31
From or via Italy	410	53
From Germany	6	4
From India	......	17
Total	1,161	272

All American leaf, against 509 hogsheads and 630 bales and cases in 1888, 810 hogsheads and 385 cases and bales in 1887; 1,127 hogsheads, 570 cases and bales in 1886; 602 hogsheads, 579 cases and bales in 1885; 120 hogsheads, 415 cases and bales in 1884; 1,632 hogsheads, 515 cases and bales in 1883; 892 hogsheads, 471 cases and bales in 1882; 788 hogsheads, 338 bales and cases in 1881; 1,076 hogsheads, 195 cases in 1880.

I am afraid the Malta market for leaf tobacco is decreasing in importance.

AMERICAN MANUFACTURED TOBACCO.

There has been a fair trade, but mostly in the low class of Cavendish; the better kind, which used to be taken more liberally years before, has not sold so well. The importations in 1889 were 1,844 packages, against

2,088 in 1888, 1,327 in 1887, 2,211 in 1886, 2,740 in 1885, 2,124 in 1884, 1,632 in 1883, 3,175 in 1882, 2,093 in 1881, and 2,754 in 1880.

CIGARS.

Four hundred and forty-seven cases were imported in 1889, against 318 cases in 1888, 331 in 1887, 382 in 1886, 325 in 1885, 449 in 1884, 598 in 1883, 842 in 1882, 252 in 1881, and 228 in 1880, mostly from Germany; a few only came from the East Indias and Havana.

REFINED PETROLEUM.

This market so far has only taken refined in cases, but a tank has been built to store oil in bulk from Batoum, but it has not been filled yet. The law has been passed here to prohibit the importation of any oil that will give off an imflammable vapor at a temperature of less than 76 degrees Fahr.

	Cases.
The stock in deposit on January 3, 1889, was	70,383
Imported in 1889	57,502
	127,885
Delivered in 1889	70,710
Stock January 3, 1890	57,175

In 1889, the imports consisted of 31,394 cases "Atlantic" brand from Philadelphia, and 26,108 cases from Batoum in Russia.

The importations in past years have been as follows:

1888	118,972	1884	42,063
1887	36,858	1883	60,923
1886	56,685	1882	34,490
1885	64,682		

It can not be denied that the competition of Russian oil is gaining ground to the detriment of American. American is worth 6 to 8 kopecks per case more than Russian.

ALCOHOL.

The importation in 1889 amounted to 1,894 barrels, butts, and hogsheads, German, Swedish, Austrian, and other continental distilling, estimated to contain 123,539 American gallons; against a total in 1888 of 169,700 American gallons, in 1887 of 164,310 gallons, in 1886 of 91,320 gallons, in 1885 of 86,915 gallons, and in 1884 of 82,080 gallons. No American alcohol has been imported in 1889; it can not compete just now with the continental distilling.

WHEATEN FLOUR.

Notwithstanding the relative duty here on wheat and flour continues to afford some protection to millers in the Island, the importation of flour in 1889 was about the same as in 1888. The larger quantity was, as before, received from the Danube. The imports in 1889 were:

From the Black Sea	bags..	19,897
From England, mostly American	bbls..	2,949
From Trieste	bags..	1,059
From France	do...	423
From Italy	bags..	118
From Egypt	do...	10
		24,456

as against 26,336 bags and barrels in 1888; 27,383 in 1887; 9,850 in 1886; 4,039 in 1885; 2,982 in 1884; 2,687 in 1883; 5,088 in 1882; 2,791 in 1881; 1,971 in 1880.

LARD.

There was a large increase in the imports in 1889, nearly all American. There were 4,540 packages imported in 1889, as against 2,477 packages in 1888; 2,343 packages in 1887; 1,656 in 1886; 1,138 in 1885; 1,168 in 1884; 760 in 1883; 1,320 in 1882; 1,225 in 1881, and 1,960 in 1880.

HAM AND BACON.

Seven hundred and nine-eight packages, principally American, were imported in 1889, as against 571 packages in 1888, 600 in 1887, 1,029 in 1886, 1,043 in 1885, 1,927 in 1884, 983 in 1883, 1,623 in 1882, 960 in 1881, and 730 in 1880.

CHEESE.

Three thousand one hundred and forty-nine boxes were imported in 1889, nearly all American, via England. The receipts were 4,346 boxes in 1888; 3,786 boxes in 1887; 4,374 boxes in 1886; 5,020 boxes in 1885; 2,852 boxes in 1884; 2,625 boxes in 1883; 4,005 boxes in 1882; 2,951 boxes in 1881, and 2,332 boxes in 1880.

BUTTER AND MARGARINE.

The importations in 1889 were 3,881 packages of butter, and 3,900 margarine, 7,781 in all; against 7,512 in 1888; 8,546 in 1887; 10,752 in 1886; 7,662 in 1885; 4,764 in 1884; 4,748 in 1883; 4,035 in 1882; 4,364 in 1881; 2,828 in 1880. All from England, but mostly of American manufacture.

FLORIDA WATER.

The imposition of a duty on this article, the equivalent of the amount of alcohol it contains, is having the effect of diminishing the importation. We only received 1,028 boxes of 1 dozen each in 1889, against 6,050 dozen bottles in 1888; 5,530 dozen in 1887; 9,518 in 1886; 4,434 in 1885; 4,317 in 1884; 7,925 in 1883; 6,580 in 1882.

CLEANED RICE.

The price of wheat having been low in 1889, and that of rice high, the importations in 1889 were small. We received 5,397 bags of 2 cwt. each in 1889 of which 1,000 bags came direct from Rangoon, and the rest mostly via England; against 9,686 bags in 1888; 16,053 in 1887; 15,251 in 1886; 12,446 in 1885; 8,051 in 1884; 12,266 in 1883; 31,500 in 1882; 22,622 in 1881, and 27,914 in 1880.

COFFEE.

The importations were again larger in 1889 than in 1888, viz, 6,772 bags, nearly all Brazilian, via England, against 4,343 bags in 1888; 1,128 bags in 1887; 5,193 bags in 1886; 12,619 in 1885; 4,686 in 1884; 9,568 in 1883, and 11,737 in 1882.

CODFISH.

The first cargo this season arrived on the 24th of October, 1889, and was 1,432 quintals. This cargo sold well, but a part cargo, consisting of 1,400 quintals, has not all been sold; it arrived on the 13th of January, 1890. The demand has been disappointing. In 1889 we imported 3,066 quintals, against 9,844 quintals in 1888; in 1887, 6,402 quintals; in 1886, 8,715 quintals; in 1885, 4,601 quintals; in 1884, 10,702 quintals; in 1883, 8,594 quintals; in 1882, 4,393 quintals; in 1881, 1,200 quintals; in 1880, 10,087 quintals.

PICKLED SALMON.

Only 263 tierces were imported in 1889, all from British North America via England, against 522⅓ tierces which came here in 1888, 286 tierces in 1887, 702 in 1886, 447 in 1885, 579⅓ in 1884.

OLIVE-OIL.

None was exported to the United States in 1879. Direct opportunities are very rare, and when any present themselves they demand a much higher freight than they do from other Mediterranean ports. Besides there were very few lots adapted for the United States, and for these very high prices were asked. Our stock on the 2d of January, 1889, consisted of 51,020 American gallons.

The following quantities of articles subject to duty were withdrawn from bond and dues paid for local consumption in 1889:

Wheat	bushels	858,344	Potatoes	pounds	10,071,950
Beans	do	131,952	Wine	gallons	3,123,793
Indian corn	do	4,812	Alcohol and spirituous liquors	do	213,248
Barley	do	23,744	Beer	do	755,181
Other pulse	do	173,712	Bullocks	heads	16,683
Wheaten flour	pounds	3,467,625	Horses and mules	do	312
Locust beans	do	3,874,150	Olive oil	gallons	363,808
Cotton seed	do	6,819,600			

C. BREED EYNAUD,
Vice-Consul.

UNITED STATES CONSULATE,
Malta, February 10, 1890.

AMERICAN TRADE WITH SOUTHWESTERN ANDALUSIA.

REPORT BY CONSUL TURNER, OF CADIZ.

CADIZ-AMERICAN TRADE.

I embrace this opportunity of calling the attention of the Department to the share this consulate had in the Spanish-American trade of 1889.

The quarterly report of the chief of the Bureau of Statistics of the Treasury Department shows that in 1889 the declared value of the imports from Spain to the United States was $4,636,661, and that the value of the exports from the United States to Spain was $11,932,614. Volume of trade $16,569,275.

The value in United States gold of the articles sent from this consular district to the United States, was $1,528,679.44, or nearly a third of the total amount imported from Spain.

Up to date I have received returns showing the amount of goods imported from the United States by this district from but one of its eleven custom-houses. That one is Cadiz and it shows that goods from the United States to the value of $1,204,433.55, United States gold, have been entered at this port. Hence it is safe to predict that when returns are in from the other ten this consulate will be able to show that fully a third of the goods imported from the United States by Spain came to this district, or in other words this district during 1889 did a third of the $16,569,275 business transacted between the two countries.

These figures considered with the openings that exist here for American goods, staves, agricultural implements, petroleum, furniture, drugs, canned goods, breadstuffs, meats, and the thousands of household novelties and conveniences of life that would be a revelation to and create a revolution among the people, are more suggestive of the feasibility of American agencies being established here than anything I can write.

The people of the two countries are unacquainted with each other, for while all the other countries of Europe have contributed largely to the settlement of the United States, Spain's quota has been comparatively insignificant. During the sixty-seven calendar years, 1825–1886, inclusive, the British Isles sent to the States 5,688,969 immigrants, and Germany 4,140,941, and Spain sent less than 30,000. The constant going and coming between the United States and the countries of Europe, such as England, Germany, France, etc., have made our resources and advancement well known in those countries, but until quite recently the reverse has been true so far as Spain is concerned, for the Spaniards were not only ignorant of us, but our tourists and writers failed to visit them, and to the masses of Americans Spain remains an unknown land.

Other nations of Europe know full well the value of our products, and are not only large buyers, but in many instances watch our Patent Office and imitate acceptable inventions and improvements.

The inventive genius of the United States is commencing to be known in Spain, and now is the golden opportunity to make it better known.

An address delivered to Sr. Peral, the inventor of submarine boats, said among other things:

> Your name will be placed with those of Franklin, Morse, Fulton, Howe, Edison, and the other great and immortal geniuses of the nineteenth century.

It was pleasant to know that all named were Americans, and it was still more pleasant to realize that the speaker placed them in their rightful place, the head of the list, and with him the entire list.

In a conversation between two Spanish gentlemen as to the relative advancement of different countries, one of them said:

> Take from the world what the science and inventive genius of the United States has given it and you will be forced back two hundred years from the highest civilization of the present.

I mention these things as a preface for saying that unless we profit by them and strengthen and make aggressive our commercial relations with this country we will never be known to the masses of the people, except by the weak imitations of our products that are being brought here by other European nations.

Imports from the United States.—During the calendar year 1889 the declared value of goods imported by Cadiz from the United States amounted to 6,240,593 pesetas, or $1,204,434.44 United States gold.

The principal articles in the order of their importance were, leaf tobacco, staves, and petroleum.

The value of hams, bacon, and lard, as shown by the official report of the custom-house, is the ridiculously small sum of 2,592 pesetas, or $500 in round figures, while that of England is 599,899 pesetas, or $115,780. I might add that the ham, bacon, and lard sent here by England are almost without exception produced in the United States. This is a clear case, showing that we pay tribute to Great Britain as a seller of one of our greatest agricultural products.

In the sale of staves we led all competitors, having sold at this port to the value of 501,476 pesetas.* England followed with 204,325, and France, the remaining competitor, with 8,622.

The value of the petroleum imported from the States was 36,729 pesetas, and the duty paid to the Government by the importers amounted to 53,429 pesetas, slightly more than 140 per cent. of the declared value of the oil. The average New York price of petroleum landed at Cadiz is 7.50 pesetas per case of 10 gallons, and the duty collected by the Spanish Government is 10.50 pesetas per case. From this statement it will be seen that the duty is 140 per cent. of New York quotations for petroleum landed at Cadiz.

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*The staves sent by England to this district are of American origin, being sent to England from New Orleans and other Southern ports as dunnage of vessels loaded with cotton.

The declared value of the lumber brought from the United States is 10,061 pesetas. Pitch-pine lumber brought from our Southern States retails here at 12.6 pesetas per cubic meter.

Imports of agricultural implements.—Omitting comment on other articles, I desire to call attention to the value of the agricultural implements and machinery brought to this port during 1889, and to preface the statement by saying that in this trade we had no *accredited* share. Such American implements and machinery as came to Cadiz were credited to England, France, or Germany, because they were shipped via those countries or because in a few instances they came from branch houses of American firms.

Value of imports of agricultural implements and machinery.

	Pesetas.
England	547, 340
Germany	144, 936
France	247, 902
Belgium	249, 734
Italy	22, 376
Total value	1, 212, 288

The duty per 100 kilograms on machinery is:

	Non-treaty nations.	Treaty nations.
	Pesetas.	*Pesetas.*
Scales, etc	27, 50	22. 50
Agricultural	1. 00	. 95
Motors, etc	2. 50	2. 40
Copper machinery and repairs of same metal	27. 00	24. 00
Other industrial machinery	9. 00	8. 00

From this table it will be seen that as England paid duty amounting to 10,960 pesetas on 548,340 kilograms of machinery, a large part of it must have been other than agricultural, while the amounts of duty paid by the other countries named above show that the machinery imported from them was almost entirely agricultural. See tables appended.

It is not egotistical to say that American agricultural implements surpass all other makes in variety, usefulness, and durability, and it is hard to understand why no effort is made by our dealers to reach the markets of this country, where farmers are just awakening from the most primitive conditions.

Miscellaneous imports.—The value of other articles sent to this port by other nations, and the trade of which I think we could secure a share, is as follows:

	Pesetas.		*Pesetas.*
Pitch, tar, etc.:		Furniture:	
England	88,944	England	433,886
All other countries	438	Germany	26,308
Drugs, etc.:		France	38,026
United States	2,355	Total value	498,220
England	234,967		
France	104,323	Spirits:	
Belgium	91,356	England	33,557
Germany	36,454	Germany	731,295
All other countries	22,317	All others	171,697
Total value	491,772	Total value	936,549

Indirect American imports.—The foregoing are the principal articles, but there are others innumerable that would swell the total at least 20 per cent. if they were once introduced.

In fact the markets of this country display hundreds of things manufactured or produced in the United States that go to swell the trade of other countries in the same way that the heretofore-mentioned American hams, bacon, and lard swell the trade of England with this port alone $115,780.50.

Spain is full of American drugs and patent medicines. Advertisements of the medicines are found in almost every Spanish paper.

In one store I found the following American goods bought by the merchant in Hamburg: Ice-cream freezers, office fixtures, pumps, locks, screws, etc., shotguns and pistols, kitchen furniture, cements.

In others I found American goods, from France and England, as follows: Drugs and roots of various classes, leads and paint powders, prepared paints, etc., toilet articles, toys and jewelry, maps, charts, and globes.

European imitations of American manufactures.—Seventy-five per cent. of the billiard tables used here are manufactured in the United States, and there are many printing-presses bearing the American stamp, but I am informed that they are manufactured in Germany. They are excellent imitations of American presses, but they are inferior in finish, execution, and steel. The information that these presses bearing the American stamp are of German origin comes from the dealer who sells them.

I am of the opinion that thousands of American novelties are imitated in several European countries and sold in the markets of the world as being imported from the United States. To get a fair idea of the injury done us by indirect trade, it is only necessary to add the sum of the injury done us by these weak imitations of American goods to that caused by the large amount of real American origin that pay high tribute to intermediate countries before reaching the market of final sale and consumption.

Our trade with Spain is indirect to a great extent, and on that account all official figures underestimate the true commercial relations of the two countries. I wish to cite two cases in point, viz: The official supplies and records sent by the State Department for the use of this consulate come indirect, and for that reason are booked in the custom-house of this port as imported from England. This statement covers a shipment of meats from Kansas City, Mo., and in fact nearly all indirect shipments.

Exports to the United States.—The exports from Cadiz to the United States aggregate $745,082.73, according to the record of consular legalization of invoices for 1889–'90, yet the custom-house records of this port show that fully 65 per cent. of this was sent to England and other European countries, via which places these exports go to the United States.

We are the second largest buyer of wine at this port, and yet our identity is lost in the official summaries under the term "All other countries," while the two countries to which our purchases are sent for transshipment head the list, because to their own purchases the larger share of ours is added.

General exports.—The principal exports of Cadiz are wine, brandy, and salt, supplemented by occasional shipments of cork, olives, olive-oil, licorice root and paste, wine lees, olive lees, fans, playing cards, etc.

The export of wine for the year amounted to 58,673 butts, and 3,700,000 gallons of brandy were also exported. The salt exported reached 139,548¾ lasts; an increase of 38,741 lasts over 1888. Nearly all the salt exported went to South America and Newfoundland.

American shipping.—The prosperity of Cadiz depends solely upon commerce and when its prosperity was in the ascendency this beautiful harbor contained as many as thirty American vessels at a time. During the past year ten American vessels made this port and thirteen foreign, and five American cleared from here for the United States. This statement does not include the steamers of the Transatlantic Company, that make the ports of New Orleans and New York via the Antilles. The conditions of direct trade bid fair for improvement. Already ten vessels have cleared from here for the States, and on the 12th inst. the first of a line of steamers to ply between here and New York will sail. It is hoped that the currents of trade via Liverpool will not be so long in changing that this line will have to be abandoned.

I have said that Cadiz can only exist by commerce, and for that reason it is hard to understand why those interested do not make more than temporary and spasmodic efforts to improve the shipping facilities of the bay. Heretofore I have informed the Department of propositions made by the directors of several English steam-ship lines to make Cadiz instead of Lisbon the port of call, provided the authorities gave them permission to build deep-water docks and that the Andalusian Railway would put on fast trains connecting Cadiz with London in fifty-two hours. As yet no action has been taken, and the people of the city seem to have again returned to a torpid or indifferent state or centered their energies for the pronunciation of enthusiastic eulogies on Señor D. Isaac Peral and his submarine torpedo-boat. The question of improving the bay is one of long standing, but apparently no nearer solution than when first conceived. About twelve years ago a public spirited and highly intelligent merchant, who realized the great and magnificent possibilities of Cadiz as a shipping center, left at his death $1,000,000 to be used in cleaning the bay and in building docks. I am told that the money has been spent, and it is apparent to all that the bay is still dirty and that there are no docks in sight.

During this general indifference of Cadiz, ports without natural advantages have become electrified by commercial activity and have attracted shipping. Barcelona, Malaga, Seville, and Huelva each have fine docks, and in the near future the construction of docks at Gibraltar and the completion of the Bobadilla-Algeciras Railway will work Cadiz a permanent injury. Thus it seems that the commercial possiblities of one of the finest harbors in the world and the finest and safest of southern Europe will not be realized, for the people seem to complacently watch trade and shipping drift to other ports. Nothing is done to maintain the commercial supremacy that nature has given and that man has indorsed for four thousand years. The building of dry docks for the construction of Government cruisers and torpedo boats by Vea Murguia Hermanos is well under way, and the indications are favorable for a floating coaling station to be established in the bay, so that in lieu of docks vessels can coal with the same ease as at Gibraltar.

CONSULAR AGENCIES UNDER CADIZ.

PUERTA SANTA MARIA.

During the year ended June 30, 1889, this consular agency legalized wine shipments for the United States amounting to 816,082 liters and valued at 984,202.37 pesetas. Wine is the only article of export, and all its imports are entered at Cadiz.

Its sanitary condition is bad and the death rate during the calendar year was 46 per thousand. Population, 20,000.

The only public statistics obtainable relate to butchering. They show that for the consumption of 20,000 people 2,146 head of cattle, 1,241 sheep, and 1,456 pigs were slaughtered during the past year.

SAN LUCAR.

Although there is no United States agency at San Lucar, it may interest the Department to know something of its business. During the year 1889, 502 vessels, having tonnage of 217,520 tons, entered the port; of this number 101 were British, with a tonnage of 42,079 tons.

The principle articles inported and exported through the custom-house during the year were—

	Tons.
Imports:	
Coals	1,642
Sulphur	264
Barley	371
Machinery	31
Vegetables	30
Indian corn	116
Empty casks	1,092
Exports:	
Salt	890
Wine lees	184
Empty casks	1,088
Bones	22
Oranges	11

The total amount of wine produced was about 18,000 butts. Of this product France bought 6,354,222 liters, England 229,839 liters, and Belgium 2,000 liters.

For the foregoing data I am indebted to the British consulate, which is represented at San Lucar.

SEVILLE.

The entire trade of Seville has suffered a large decrease. The exports were $1,675,425 less than in 1888. The trade with England fell off $1,092,540. The decrease in exports is mostly in metals, as follows:

Lead	$220,000
Quicksilver	780,000
Copper precipitates	195,000

The exportation of these minerals has been transferred to Huelva and has not decreased so far as the whole district is concerned. While exports from Seville to England have declined they have increased during the calendar year, from 2,174,193 pesetas in 1888 to 3,647,872 in 1889, an increase equal to $187,915.39 in American gold, to the United States.

The principal articles of export to the United States, with their values, are—

	Pesetas.
Cork	1,732,061.81
Olives	681,432.69
Licorice paste	236,329.21
Licorice root	170,540.00

These are supplemented by olive-oil, canary seed, lead, wine, castile soap, lace, paintings, etc.

The imports from the States are about the same as for Cadiz, except that the volume is larger, but being unable to secure official data I must defer all statements as to what the States send to Seville until October, at which time official statistics for 1889 will be published by the Spanish Government. From private sources I have learned of several large inportations of mining machinery from New York. This information was given me by Senor Salvador Vinegra, of Cadiz, the manager of a Spanish mining company. He said, that although the American machinery is lighter, it is durable and cheap, and is the result of the latest scientific discoveries in mining; that the constant improvement made by the United States in mining necessitates frequent changes in machinery. American improvements are always of such a character as to make their adoption profitable. Heavy English makes are not adapted to change or improvement without great expense.

Shipping.—The shipping of Seville, a table of which is appended, has decreased, owing, probably, to the shifting of mineral exports and to the decrease in the importation of German spirits, which declined from 3,879 tons in 1888 to 560 tons in 1889. The imports of lumber, petroleum, and sugar have also decreased. In 1888, 1,347 vessels with a tonnage of 369,418 tons entered, and in 1889 the number was reduced to 1,267 with a tonnage of 300,004 tons. During 1889 not a single American ship entered, and for the five years previous not more than two, but I am happy to say that up to date (July 1, 1890) three American vessels have entered at Seville—two with cargoes and one in ballast—all loaded at Seville with cargoes for the United States.

Mining.—The river is being slowly improved and the prospect of increased mining operations indicate a like increase in shipping. Recently several English firms have invested in iron mines in the Sierra Morena, about fifty miles from Seville, and it is reported that the Pedroso mines and foundry are being negotiated for by an English company.

British capital has also been a large purchaser of copper mines in Peñaflor, and the infusion of this English energy will soon stimulate the exports of Seville.

HUELVA.

During the year 1889 the exports from Huelva to the United States have more than doubled, and although the wine of this district is in great demand in Europe, none is sent to the States, the exports being entirely cupreous sulphur ore.

The French vessels that make the port of Huelva are largely engaged in the wine trade, as are also many of the Italians and Scandinavians. These last carry wine to France and Germany. The British vessels in carrying ores to England, returning with machinery, pig-iron, and general cargoes.

During 1889 the mining companies of Huelva imported 83,000 tons of pig-iron. It all came from Bilbao, where it is very cheap, except the supply imported by the Rio Tinto Company, which imports under contract from England.

Agricultural implements.—Here under English influence the use of modern agricultural implements is becoming general, and the rude tools of Cæsar's time are fast giving place to those of progressive science.

During 1889 822 tons of machinery, a fair share of which should be classified as implements, were imported.

Imports and exports.—In 1889 the exports reached the sum of $26,767,775, and the imports $8,095,540. There has been an increase in the exportation of precipitate of copper and a decrease in the exportation of copper ore.

Principally to France and Germany, 338,538 hectoliters of white wine were exported. The French regulation prohibiting the importation of wine fortified with German alcohol has caused a great falling off in the importation of such alcohol by the wine growers of Huelva.

Statistics.—It may be interesting to know that during the year 1889 the people of Huelva butchered, for their meat supply, 2,264 oxen (including calves) and 12,371 sheep and goats. There were 115 marriages, 833 births, and 645 deaths. Sanitary condition fair.

JEREZ DE LA FRONTERA.*

Vineyards.—These, thanks to the absence of rain during past winter and early spring, have been, with few exceptions, exempt so far from mildew, which may also be attributed to the prudent use of sulphate of copper, in liquid form, bordalese and blue water, in sprinkling the vines as a preventive measure.

While the Jerez district has this year so far been exempt, reports have been made of the appearance, this spring, of new diseases in the provinces of Huelva and Huesca, though the character of such has not been officially determined. Although any prognostics of the moment would be premature, still the present aspect of the vineyards is favorable as regards the coming vintage, inasmuch as the vines are heavily laden with young grape, though still backward, owing to the general crudeness of winter and spring.

On the occasion of one of my recent visits to the vineyards, I was shown a number of vines still bearing fruit, which were planted over a hundred and sixty years ago. My last report on the past vintage, has but been corroborated, as the majority of the wines from it have turned out only of medium, where not of inferior quality.

Brandy (Jerez Cognac).—This new branch in the Jerez wine trade still continues progressing. The liquid produced as the result of the distillation of pure wines, decidedly vies in many instances with the products of the Charente (France) district, and is meeting with favorable and increasing acceptation, in the different markets where presented, France being one of the principal markets to which it is being sent. Whereas the result of the Jerez wine trade was discouraging in general for the calendar year 1889, as reported by me, 1889–'90 has shown a decided improvement, with prospects of a continuance.

The following tables show the improvement of wine trade between

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* Report by consular agent Hale.

Jerez and the United States for the year 1889–'90, as compared with 1888–'89, as also the exportation of Jerez wines and their like during last five calendar years.

Export of wines from Jerez to the United States.

Years.	Liters.	Pesetas.
1888–'89	1, 782, 251. 68	2, 158, 062. 96
1889–'90	1, 961, 097. 64	2, 282, 153. 08
Increase	178, 845. 96	124, 090. 12

The total exports of wine from Jerez for the years 1885–'89, were as follows:

	Hectoliters.
1885	187, 640
1886	287, 200
1887	163, 180
1888	254, 300
1889	270, 730
Total	1, 163, 050

Showing an average annual export of 232, 610 hectoliters.

The wine product of Jerez during the calendar year 1889 was represented by 32,788 butts or 160,955 hectoliters against 52,344 butts or 256,961 hectoliters in 1888. During the three fiscal years 1887–'88, 1888–'89, and 1889–'90 the wine shippers of Jerez, as a body, have paid an annual octroi tax of 120,000 pesetas.

Meteorological.—Unusual changes in the weather have been experienced from beginning of the present calendar year. While January and February were in their temperature in accordance with the season, during March almost summer heat was felt; April following in its footsteps to end with rain, when May put in an appearance with heavy rain accompanied by hail, following with several days of unusual cold weather, that induced one to think we were in this country in the month of January. June, although quite in place as a summer month, favoring us with wilting warm days, has still given us a number of very chilly mornings and evenings. Although no official barometer or thermometer record is kept in this city, from private sources it is known that the 9th of June the thermometer stood 26 centigrades in the shade and 38 in the sun. From Seville reports came showing thermometer the 6th to 8th of June as standing 42 centigrades in the shade and 52 in the sun.

Taxes and population.—While Jerez de la Frontera (there is another Jerez, Jerez de los Caballeros, in Spain) stands fourth in Spain and first in the Province of Cadiz, as tax-payer, the territorial—landed property—tax amounting for 1889–'90 to pesetas 1,251,069, it is the eleventh in Spain on the list as regards inhabitants, the last census, that of 1887, showing 61,708.

Petroleum.—During 1889 113,818 kilograms of this article were consumed in this city. This article, coming from the United States, is principally imported crude and refined in Seville.

Tobacco culture.—The free culture of this plant, which is now, and has been for a long time, under government consideration, is anxiously anticipated by this district, as should such permission be granted, which is very improbable, the present stagnant condition of agriculture would be immensely improved, the soil of this district being highly adapted for the culture of that plant.

Labor strike.—The universal strike, which was announced to occur the 1st of May, took no important form in this city, and has only been represented by masons and brick-layers, bakers, and barbers' employés. The strike on part of masons and brick-layers, being represented by a few isolated gangs abandoning their work the first days of May, demanding, pacifically, a reduction of hours and increase of pay, the demands, not being complied with, the men, after a day or two, returned to their work. The bakers' employés, after being on strike some ten or twelve days, were obliged to return to work on old conditions; no inconvenience or scarcity in the bread supply having been felt in this city, owing to the authorities' judicious arrangements in placing military experts in the bakeries, and procuring supplies of bread from the neighboring towns. The barbers' employés were the most successful in their strike, their demands for a reduction of hours having been acceded to by the employers.

Cholera.—So far no signs of this epidemic, which is now scourging Valencia, have appeared in this district, and it is to be hoped we will be as fortunate as in 1885, when the entire province was victimized; but two cases were recorded here, those being imported by a man and a woman clandestinely entering from Cadiz. Still the authorities, local, are most solicitous in adopting all means that may conduce to a continuance of the present good state of the public health. Careful examinations are made of all fruit, vegetables, and fish offered for sale, as also are visits to different parts of the city made by the aldermen, examining into and insuring the sanitary conditions of the residences of the poor.

American cooking-stoves.—I am of opinion that there is in this country, notwithstanding the stubborn adherence of its people to old customs and ideas, an opening for introducing American cooking-stoves. As coke is beginning to be used quite extensively here for cooking purposes, the old and most inconvenient Spanish ranges are disappearing, to be substituted by the so-called economical cooking places. I have examined a number of these and not only find them most inconvenient for installment and removal, being of brick, etc., but quite deficient for cooking purposes as compared with American cooking-stoves. In the said economical cooking ranges, everything is cooked by the pots or pans being placed on the large iron plate which covers or forms the top of the range, hence no direct heat is communicated to the cooking dishes. Having expressed the foregoing, I shall be pleased to assist any of our American manufacturers who may be desirous of introducing their articles of that line in this country.

R. W. TURNER,
Consul.

UNITED STATES CONSULATE,
Cadiz, July 9, 1890.

PRODUCTS AND COMMERCE OF GRAO OF VALENCIA.

REPORT BY CONSULAR AGENT MERTENS.

EXPORTS.

In reviewing the trade and commerce of this port during the past year, 1889, I must defer statistical proofs until a later report, when the season of shipments is finished. I may, however, mention that nearly all the crops in this province have given excellent results.

Wine.—The vineyards yielded not only an exceptionally good quality of grapes in abundance, but the wine was sought after by our Catalan neighbors, whose vines were sufferers from mildew, thus removing our competitors, producing greater demand, and consequently higher prices for our wines.

The shipments so far have been unprecedented:

	Hectoliters.
France	122,325
South America	17,000
Cuba	630
Philippines	534
Algiers	224
United States	98
Great Britain	38
Germany and Belgium	2
Total	140,853

As will be seen, most of it went to France, where it is generally mixed with the lighter wine of that country to give it both strength and color The next largest market was Buenos Ayres, but owing to financial troubles exporters this year have sent to Montevideo. Wine for South America has to be strengthened with alcohol up to 20° Guay Lussac, to prevent further fermentation on the long journey, particularly in passing the equator, and this use of alcohol makes this article of great importance in this place and province.

Alcohol.—The importation during the last eight months, or since beginning of the present season, amounted to 89,000 hectoliters, the greater part of which came from Germany, although of this there is about 20 per cent. of Swedish alcohol, and from Austria-Hungary a small share of about 200 casks in all during the last same period.

The alcohol is made of potatoes, and for mixing with the better class of wine it has to be perfectly neutral, *i. e.*, well distilled, three times rectified, and filtered to obliterate every possible taste. It is brought here in oak casks of 600 to 650 liters, and these casks are again used for shipping wine from this place. The alcohol is sold here by agents of the German manufacturers—cif. Grao of Valencia, and leakage deducted in the invoice. The casks are weighed upon arrival. After deducting the tare the net weight is reduced at 815 grams into liters. Sales are made on three months' credit after arrival of goods. Actual price of German spirits, as mentioned above, is 33 pesetas per hectoliter, including cask and leakage.

American alcohol used to come here, and both the quality of it and the strong, well-made barrels containing it, were greatly appreciated; nor were the conditions of payment with London bankers' credit objected to; but the difference in the price, the convenience of buying from Germany in small lots of five and ten casks, instead of taking entire cargoes as from the United States, and above all the facility of receiving it by regular lines of steamers sailing fortnightly, have left the American trade in this article completely behind, and only a considerable advantage to customers in price will bring it back again, or a great improvement in communication between the United States and Spanish Mediterranean ports.

Oranges.—The export of oranges will be of unusual importance this year, owing to a very large and excellent crop, and to the failure of the apple crop both in Europe and the United States. Of the estimated crop of nearly 5,000,000 cases, 1,322,855 cases have been shipped to foreign ports already, of which up to date 114,316 cases went to the United States, 996,798 to Great Britain, and 211,741 to Germany.

As they are sent to France in bulk by rail an exact estimate can not be obtained, but is calculated to be the equivalent of about 350,000 cases per year.

The business here is done through agents, who look after the shipments, inspect the fruit, pay advances, settle accounts of consignments received, etc., but owing to the enormous competition their principal business is to induce packers and growers to ship to their respective firms, and watch to see that this is done, otherwise contracts can not be relied upon.

Onions.—Next to oranges was the export of onions from this port of some consideration during the last year, which, however, are chiefly shipped to the different ports of Great Britain.

From January to December 1889:	Cases.
Liverpool	145,520
London	161,064
Various other ports	53,185
Total	359,769

Saffron.—The saffron crop of 1889 was gathered under very favorable circumstances, and as there had been planted a larger amount of bulbs, the result was naturally a more satisfactory one than in the previous year.

The total during the year 1888–'89 amounted to 33,013 kilograms against 28,994 in 1887–'88, and 33,464 in 1886–'87.

Since prices of the former season closed very high, they also began this season at an unusual high rate, but owing to little demand they soon declined, rallied, however, at the increase of the demand, and rose to the present high quotations of 140 francs per kilogram.

From the beginning of the season, October 16, 1889, until March 1, 1890, 18,435 kilograms were sold, against 20,325 during same period of the previous year, leaving about 5,000 kilograms of stock at beginning of March in this market.

Adulterated saffron.—Above-mentioned figures are only for Valencia saffron, or the genuine and pure article, whereas for the so-called Alicante saffron, or adulterated stuff, no statistics hold good, as the manufacture of these dyed grasses goes in accordance with the demand, and it is only astonishing that this "industry" has not yet been taken up in the United States, since a demand seems to exist for it there, to judge by the continued purchases of this article, and people seem actually willing to pay high prices for worthless and even sometimes dangerous goods.

Far better would it be, however, to banish this imitation altogether, since no guaranty against any poisonous dye of said grasses can be obtained, which at times has been employed and lead to disastrous results.

IMPORTS.

Salt codfish.—The import of salted codfish at this port during the year 1889 amounted to 733,000 kilograms from Norway, 55,000 kilograms from France, and 1,556,350 kilograms from Newfoundland and Labrador; total, 2,344,350 kilograms against 2,710,100 kilograms in 1888.

Lumber.—The imports of lumber during the year 1889 were as follows: From Odessa and Swedish ports 8,007 standards, from the United States 1,512 standards, and from Austria 200 standards.

Shipping.—The movement of this port during 1889, as regards vessels of the different foreign nationalities, shows the following list, viz:

Nationality.	Sailing.		Steam.		Total.	
	No.	*Tons.*	*No.*	*Tons.*	*No.*	*Tons.*
Spanish	1,220	25,819	876	675,843	2,096	701,662
English	11	2,676	351	285,420	362	288,096
French	15	2,048	176	123,532	191	125,580
Norwegian	7	4,215	116	101,728	123	105,943
Russian	10	6,335	17	19,430	27	25,765
Grecian	7	2,480	3	3,095	10	5,575
Italian	63	15,367	5	14,242	68	29,609
Belgium			13	16,142	13	16,142
Danish	1	177	20	22,225	21	22,402
Swedish	3	1,775	15	10,811	18	12,586
German			18	13,990	18	13,990
Portuguese	1	72			1	72
Austrian	1	259	7	4,375	8	4,634
Total	1,339	61,223	1,617	1,290,833	2,956	1,352,056

As will be seen, the American flag was glorified through its absence.

EXPORTS TO THE UNITED STATES.

The export of different goods from this port to the United States during the past two years was as follows:

Articles.	1888.	1889.
Oranges	$180,487.00	$300,258.16
Raisins	19,724.00	13,251.06
Saffron	17,092.00	17,053.69
Onions	7,093.00	2,844.49
Wine	23,747.00	21,290.53
Capers	223.00	1,248.15
Licorice	4,988.00	8,481.53
Sundries	1,022.00	2,825.65
Total	254,376.00	867,253.26

PETROLEUM REFINERY.

Mention might be made of the only existing petroleum refinery of this place with its 145,000 inhabitants, not to count the thickly populated surrounding villages. Since a duty of 32 francs per kilogram on refined oil makes the import of it nearly impossible, the said establishment has it all its own way, and supplies a most dangerous and imperfectly refined oil, selling at 19 pesetas per case of 10 gallons.

Duty on crude oil amounts to 21 pesetas per 100 kilograms; the cost price of same is equal to about 18 pesetas per case of 100 kilograms, thus leaving a balance of 6 pesetas per case (10 gallons), or 18 francs per 100 kilograms for refining and other expenses, profits, etc., for which amount a competitor might be tempted to set up a rival establishment furnishing a superior, well-made article for which there is undoubtedly a demand.

The imports of crude oil from the United States during the year 1889 at this port and bought by this refinery were 634,050 gallons.

SPANISH-GERMAN COMMERCE.

With no other country has Spain shown such a noticeable increase in its commercial relations during the past ten years as with Germany. Apart from the regular steam-ship communication, which unites the two countries, facilitating trade in the more important staple articles, a remarkable increase in the importation of manufactured goods is noticed and at the same time a falling off in this same trade with other countries.

This is chiefly due to the way in which German manufacturers introduce their wares to foreign customers. Their commercial travelers are found in every city, even in the villages, studying the tastes and desires of the people. Their well-assorted samples are selected and arranged in accordance with Spanish demand, and therefore are more tempting to the average buyer than any other of the numerous samples of foreign goods placed before them with less attention to these important details. Any change of taste or style is immediately reported at headquarters and acted upon, and this care, to gratify the national taste, united with low prices obtained by cheap labor in Germany, accounts in a measure for the growth in its commerce with this country. For instance, we see large quantities of the long Spanish cloaks (capas), neatly made of good cloth and with the inevitable gorgeous plush lining, sold at such remarkably low prices that no tailor here could compete with them, and in the numbers sold alone must be obtained the profit, for they are in far greater demand than overcoats even of the most fashionable cut.

This hint holds good for many other articles. The unwise principle of trying to compel customers to buy the existing pattern of a certain article in vogue in other countries is often the cause of its lack of successful introduction, and unless it is of a strikingly superior make the customer's taste should always be considered, especially in articles of great competition or large sales.

SPAIN AND SPANISH AMERICA.

The recent efforts of Spain to form a commercial union between the South American Republics must not be regarded as indicating an awakening spirit of enterprise, but simply as a final struggle to retain customers who have slowly but gradually been weaned away from her and with whom at present only the mother tongue forms a connecting tie.

Spain is fully aware of the widening gulf between it and its kindred in America, and that more than fine dinners, eloquent speeches, and floating exhibitions will be required to regain the lost trade. It is scarcely thirty years ago since the South American Republics depended upon Spain for everything; that is to say, not only linen and cotton goods, shoes, cigarette paper, playing cards, etc., even of inferior quality as they were, but also for vegetables, the national food, garbanzos (beans).

This entire commerce then left the larger coast cities and was carried on only with the more interior towns, and even it died out, for competition and the superior quality of the goods, as well as lower prices, easier facilities in obtaining what was wanted elsewhere gradually closed the old market.

Many Spanish manufacturers who depended upon those markets tried to meet the tendency to explore other than the mother country as a source of supply by placing their agents in such European cities as had direct and regular communication with South American ports, but even this could not bring back the more important large orders.

Meanwhile, however, a prosperous business in exportation of wine from this country points to a healthier basis and may be taken as a sign that in the export of natural products lies a much wider field of benefit to the Spanish merchant, and if better explored and developed and properly introduced in foreign markets would bring in a far greater income than that ever derived from manufactured articles of whatever character, as more northern European countries less favored by nature have devoted exclusive attention to manufacturing, and even the United States in their rapid progress offer themselves as formidable rivals in this line.

We may find, however, an example in the enterprise of these same rivals who place their wares on the world's markets, notwithstanding the inevitable first losses by competition, certain as they are of success in the long run, where capital is plenty and the basis is strong. But this example, if followed by Spanish firms who usually start with too small a capital, offers a picture of an everlasting struggle and comparatively little result, even though the same amount of labor and intelligence be employed. In their eagerness to export, their home markets are neglected. Take the industrious province of Catalonia alone as an example. It will find more customers in Spain than its manufacturers can supply, while they are protected by duties and need run no risks of long credits in far away countries.

On the other hand, if in exchange for all the necessary articles of importation, like lumber, petroleum, cotton, etc., the exportation of wealth-producing products of fruit, grain, wine, etc., was developed with greater interest, they would in time cover fully the foreign debt and even turn the balance in its favor, and so in course of time enable it to develop its mining interests, its wealth of coal and iron, now waiting capital to give it to the world, to supply the means of making the machinery so necessary to progress and now imported at so great an expense. Hence it is evident that, regarding manufactured articles, Spain is no formidable competitor amongst exporting countries; and in considering the South American field the suggestion offers itself, Is it not better for the industry of the United States to ascertain the strong points as well as the weak points of competing countries, in order to improve their own and thus build up a trade on a sound basis?

THEODOR MERTENS,
Consular Agent.

UNITED STATES CONSULAR AGENCY,
Grao of Valencia, March 1, 1890.

THE CORK TREE AND THE CORK INDUSTRY.

REPORT BY CONSUL SCHEUCH, OF BARCELONA.

I inclose herewith a report on the cultivation of the cork tree and on the cork industry in general, and especially of this consular district, perhaps the most important cork-raising district in the world. As the cultivation of the cork tree in the United States is entirely neglected, while cork wood and stoppers form a very important part of our importations, and as certain parts of our vast country no doubt will offer suitable soil and climate for the cultivation of this tree, I hope the report may be of interest to our land-owners and agriculturists.

THE CORK TREE (*Quercus suber, L*).

Theophrasto, in Book II of his Historia Plantarum, speaks of the cork tree as native of the Pyrenees. This plant has, therefore, been known in Europe from very remote times.

The cork tree is called Alcornoque in Castilian language; Suru in Catalan; Sobreiro in Gallician; Suvi y Sioure in provincialism; Chêne liege in French; Keonge fernem, or only fernem, in Argeline; Korkbaum or Korkeiche in German, and Cork in English.

Habitat.—It belongs to the Mediterranean littoral principally in the western section, and abounds in Spain, Portugal, and north of Africa; it is found also in the south of France, in Italy, Corsica, and Sardinia.

In the French departments of the Landes and Gironde, the *Quercus occidentalis* forms extensive woods. Of the cultivated species there is none that grows spontaneously in Spain.

In Spain it is found in abundance in the provinces of Gerona, Cárceres, and Andalusia, specially in the provinces of Huelvas, Sevilla, and Cadiz also, though in less quantity, in the provinces of Ciudad Real, Malaga, Cordoba, Toledo, and some others.

According to a calculation made by the administration of forests the extent of cork forests in Spain is about 255,000 hectares, viz., 80,000 in the province of Gerona, 54,000 to Huelvas, 32,500 to Cárceres, 28,000 to Seville, 20,000 to Cadiz, 11,500 to Ciudad Real, and 9,500 to Cordoba.

The remainder is distributed between ten other provinces in the following percentages: Gerona, 13.60; Huelva, 5.06; Cadiz, 2.75; Seville, 2.04, and Cárceres, 1.54, per hundred. It belongs to a warm climate, or at least temperate, and in the Peninsula it reaches to a height of locality of 500 meters.

In the localities exposed to the north the cork is better than those exposed to the south, and it is seldom found in calcareous soil, preferring always those of feldspar, this being observed principally in the province of Gerona. It grows and develops in ground of very little depth, and sometimes in ground, in appearance at least, very stony.

Almost all the cork trees of the province of Gerona grow in granitic or silurian ground, the latter forming a very extensive space (in which is included all, or almost all, of the Gabarras Mountain) limited approximatively by Palafrugell, La Bisbal, Gerona, Cassa de la Selva, Romanya de la Selva y Calonge.

The flowers or blossoms make their appearance in April or May; the fruit ripens in the fall or winter, from September to January, and falling from the tree as soon as ripe. Three qualities of acorns are to be observed according to their time of ripening, and are called "brevas primerizas de San Miguel," or "migueleñas (miquelinchs ó miguelinchs)," which ripen in September; the second or middling, "martinencas," which ripen in October and November; and finally the tardias ó palomeras (derrarencas), which ripen in December and January.*

This species when thirty or forty years old gives abundant and fruitful seed.

Up to four or five years they require shelter from too much sun in hot climates; and also against the cold; and in this case up to the eighth or tenth year in a cold bleak climate.

Several cork plants of one and one-half and two years resisted a temperature of 4° and 5° below zero in the ground of the special school of Mountain Engineers, situated in the Escurial, during the winter of 1876 and 1877; which contributed to this result they being in an excellent substantial soil which had greatly developed the plant.

Foliage.—The leaves of the cork tree are oval-oblong or elongated-oval, entire or more frequently toothed, and the teeth jagged; length, from 3 to 5 centimeters and 1½ to 2 wide; leathery and stiff at two and three years old. The branches are not many and the shade not much.

Roots.—They are strong and spread considerably, and frequently to be seen on the surface of the ground. It frequently happens that the portion of root exposed to the air produces cork, while that which is buried produces scarcely any.

Growth and longevity.—The growth, although varying according to the locality, is slow. There are cork trees the circumference of which, breast high, measure from 3 to 5 meters. In a cork wood of Montenegro (municipal district of Quart, province of Gerona), the property of D. Rómulo Bosch, and near the place called La Mina, we measured, in August, 1877, a tree that was 4.95 meters in circumference at the above-mentioned height, and the trunk of the tree 5 meters high, calculating its age at between one hundred and fifty and two hundred years old. The longevity of these trees is of several hundred years.

Cultivation.—The most common practice is to cultivate this plant by sowing, which is frequently done, above all in ground somewhat manured, making alternate furrows with vines. Up to their twentieth or twenty-fifth year the ground is cultivated as if it were a vineyard, rooting up at that age the vines on account of producing less fruit, and also on account of the cork trees being pretty well grown up and no longer requiring the shelter of the vines. At the end of even one year it is difficult to transplant the cork tree on account of the length of the roots, principally the central one; for which reason it will have to be cut in the seed ground, without taking it up; or then prepare a radical system by means of a false ground bottom, made artificially at a certain depth with layers of stones or bricks, or by other means to be found in treatises on forest culture.

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* The words in a parenthesis are in Catallan.

The best results.—This tree gives but little shade, which contributes greatly in causing the branches to grow crooked and of little length, thus causing the soil to become dry. To avoid all these inconveniences, which are highly unfavorable to the good production of cork, it is requisite that young plants grow up with sufficient foliage, so that the branches touch each other, and even overreach each other, till they are about twenty-five years old, by pruning the branches every four, five, or six years, if necessary, and always when the expenses are not excessive. It may be convenient, if there is not sufficient foliage in the cork trees, to introduce secondary species, such as the elm tree, the ash, the pine giving nuts, the pine known as (*pi meli*), etc., which will give shade to the cork tree, as also coolness and manure to the ground. It is also requisite on account of these last two reasons to cultivate "el madrono" (arbós) amongst the cork trees, and destroy by rooting them up "el breso" (bruch).

The fruit and coal (charcoal) of the (arbós) madrono are much appreciated. What causes difficulty of transit amongst the cork trees, especially whilst peeling off the cork, is the "la aulaga," *Ulex parvi folium*, P. (gatosa).

If the soil is poor the cork is thin, but of fine quality and very appropriate to make extra corks; if on the contrary it is rich, the cork is thick but spongy, and of but little value for the object indicated. Consequently it will be requisite to treat the cork trees in such a manner that whilst the cork grows thick it will at the same time be fine and appropriate for making corks called "Trefinos" or what is employed for champagne bottles.

Very often the more or less thickness of the cork is owing in a great measure to the manner of gathering it, as I will show further on.

Insect pests.—The larva of the *Coroebus undatus*, (corch) attacks the interior of the cork, penetrating frequently into the tree itself, which causes an undervaluation in the quality of the cork, and, moreover these perforations unite so closely and in such a manner even in the trunk of the tree, that in peeling off the cork part of the skin of the trunk itself comes off, causing much damage to the tree.

The quantity of these insects is so great in the province of Gerona, that I calculated it diminished the total product of cork to one-sixth By good luck this insect is very rare in Andalusia, and there are also very few in Extramadura. It appears not to have been met with amongst the cork groves of Algiers.

The larva of the Cerambyx cerdo, vulgarly called the capricorn of the cork tree (*banya ricart*) opens large galleries in the wood.

The ***Formica rufa L. hormigas*** (ants) (*rabaxins* or *rabaxinche*) destroys with its numerous galleries the fine cork.

The caterpillar of Bombyx dispar. eat the leaves of the cork trees, as it occurred at the end of the spring and beginning of the summer last year near Romanya and St. Christina de Aro (Gerona).

The Catalans call these caterpillars "cucas;" a name which in the Castillian language corresponds to larva.

I can not from the smallness and nature of this subject, limited only to the cork tree, enter into the minutiæ or means to be adopted to reduce to a considerable extent the damages caused by the above-mentioned insects, but I can not help at least to advise and suggest the great importance of cultivating and protecting those insectivorous birds, and in fact all kinds of animals, that prey upon said insects, or others that are prejudicial in the forest.

Diseases.—Jaspered (*Jaspeado*) is the name with which is known one of the defects of the cork, and which renders it unfit for trefinos or extra fine, and damaging it to such an extent that its value may be reduced to the tenth or twelfth part of what it ought to be. I am inclined to think that this defect comes from the tree itself, or the twisting of the fibers of the cork. To cut various incisions in the cork of the roots for the purpose of preventing the growing cork from splitting, favors, in my opinion, the quality of the cork as to becoming jaspered. This is not always easy to see by simple inspection of the cork, but it can be very perceptibly seen by introducing the cork for two or three days in water, when stains of the color of chocolate make plain the defect. These stains make their appearance in a few hours, introducing them into the salleron apparatus in which the water is subjected to a pressure of five or six atmospheres.

Barking of the cork.—The barking may be done when the plant has acquired sufficient strength to resist this operation; and though one can not say positively at what age this can take place, nor fix upon a certain dimension of the plant notwithstanding the cork tree is generally apt to suffer this operation; in Catalunha at the sixteenth or twentieth year, and in Andalusia two or three years before this time. The barking of a tree is repeated every ten, twelve, or fourteen years, generally, according as the temperature proves more or less warm, and to the greater or less altitude of the trees.

The time generally for this operation is in the summer.

The cork of the first barking is called "corcho bornio," "bornizo" or virgin, and is not fit to make corks of. The cork taken after the first barking is called "pelas," or secondary cork.

The method employed in Spain for this operation consists in the total barking, or almost total, of the trunk, and not partial, or barking one part one year, and the remainder three, four, or five years later. The operation reaches to more or less height of the trunk, according to how one wishes to diminish or increase the thickness of the new cork.

The barking by Capgrand-Mothe's system, which as is known consists in dressing the trunk with the same cork, and leaving it so dressed for a couple of months, has not met with general approval. It appears undoubted, and experiments made here and in other places and verified in France, by mountain engineers, that by the above process is prevented what is here called the "raspa" of the cork (croute in French) or crust; but it does not appear, waving other considerations, to be an economical method, particularly when applied to extensive cork groves.

For my part I would not advise the employment of this method, at least for the present; but it would be convenient and desirable to make experiments on cork trees in the Peninsula analogous to those that have been made in France, since these are situated in localities of soil and climate very different.

As an exceptional case, or worthy of notice, it is related that in barking a tree of Vall-Uobrega (Gerona) in 1885 they obtained seven dozen of pieces, or 233 kilograms of cork of fifteen years' formation, which sold for 170 pesetas. Not only did they take the cork from the trunk, but also from the branches, they being also included in the above weight. It is probable that the age of said tree must have been about one hundred and fifty or one hundred and eighty years old at the least.

I have been assured that from a cork tree that exists in the property of a Mr. S. Vidal, of Mandremanya (Gerona), about a kilometer from his house, they have seen cork taken, including from the branches, in a certain year, up to 28 dozen of pieces (931 kilograms) which, at 20 pesetas the dozen, make 560 pesetas. This cork was probably of fourteen years' growth of the trunk, and likely of eighteeen of the branches. The pieces (la pieza, or pessa) is a slab of cork 8 spans square (a lineal span being equal to 195 milimeters; 8 spans square equal 3,042 centimeters square). According to my calculation, 15 pieces go to a catalan quintal at four months after barking. As 1 quintal is equivalent to 41.6 kilograms, the result is that 12 pieces (dutsena) weigh 33.24 kilograms, and 1 piece, or pieza, weighs 2.77 kilograms.

THE CORK INDUSTRY.

Cooking.—In proportion as the cork is taken from the tree it is taken to the place where it is piled up (rusque). It is formed by placing the slabs with the concave side turned downwards. Sometimes the cork is cooked in the woods, but at other times this operation is made in the caldrons that exist in the cork factory. The slabs must remain in boiling water during the space of one hour, this operation causing an increase of thickness (of one-fourth to one-fifth generally), elasticity of the cork, and dissolution of tannin and other substances. The caldrons in which the cork is boiled are of copper, and either cylindrical or rectangular. The boiling of the cork can also be effected by steam, for which purpose it is introduced into a wooden box lined on the inside with copper or zinc, fixed or movable, which is filled with water and steam, injected therein up to a pressure of five or six atmospheres, and terminating according to the density of the cork principally, varying from twenty-five to forty minutes.

I do not think that they have employed the cooking by steam in Spain, but I believe it is still employed in the cork factory of Messrs. Sister & Lugaron, in Philippeville, Algiers.

I was told about three or four years ago that the house of Rodil & Co., of Seville, manufacturers of every kind of machinery for working cork, had invented a caldron of a special kind to boil cork. I do not know, however, what the result has been.

The steaming of cork somewhat hardens it, making it brittle.

The loss of weight produced by boiling the cork varies between 12 and 40 per cent.

Scraping.—It is requisite in making corks to take away the hard crust or "raspa," for which purpose a tool is used with a short handle and curved blade called a "doladera, raspador, or raspeta (rasclet)" scraper.

A workman can scrape from 2 to 3 square meters of cork daily (10 hours).

The loss in weight of the cork by scraping is from 20 to 30 per cent.

There are scraping-machines, those of the systems of Besson and Tousseau. The first, propelled by steam, consists principally in horizontal spindles, supplied with comb-like teeth, and turning with great velocity, at the rate of 900 revolutions a minute.

The Tousseau scraper attacks the cork by means of a vertical iron shaft carrying several knives, whose edges are also vertical, and by the rotary movement of the shaft, giving 1,400 turns in a minute, work like a brush. This machine is simpler than the one of Besson, and the slabs suffer less damages when worked by inexperienced workmen.

One man alone can work Tousseau's machine and can scrape from 10 to 12 metric quintals of cork daily.

Cutting the slabs.—Before cutting the slabs in strips, "tiras ó rebanados" (llescas), they are cooked for about half an hour, so as to facilitate the cutting, piling them soon after in a damp place so as to preserve the softness until ready to operate upon.

The slabs are divided in strips (rebanadas), the width of which is equal to the length of the corks, and in such a way that if the cork be placed in the position occupied by the slab on the tree they would have their fibers running alike. The workmen obtain or cut the strips by means of a knife with flat surface and curved edge called "cuchilla de rebanar" (slicing knife) "gabinete de llescá," which was invented by A. Cendra, of Palafurgel (Gerona).

A small metallic cylinder, that can be drawn out or in parallel with the blade of the knife, and the distance from which can be graduated by another perpendicular one and divided by French or millimetric lines, permits the strips to be obtained of any desired width.

They employ, with good result it appears, Tousseau's machine, the knife of which, joined to a frame, gives forty-five to fifty cuts in a minute. The system Nowé-Derbuel, with a circular knife, of those which I saw working about two years ago, is made in the factory of D. José Batet, at San Feliú de Guixols (Gerona).

The waste of cork in both the machines is about 4 to 5 per cent., and one can obtain with Tousseau's machine from 10 to 12 metric quintals of strips per day.

Squaring.—After the above-described operation the strips are made into squares, "cuadrados ó cuadros (carrachs"), by means of the "cuchilla" to make squares (gabinete de carra). The squares have the approximate form of a paralleliptic, and which have then the edges cut (an operation which in Castilian language is called "ochavar" (octogonise) and in Catalan "escairá," and thus prepared they cut them into corks.

This and the preceding operation, which are done by the "cuadrador" (squarer) or "carrado" are the most difficult of the cork industry, requiring great intelligence, if the slabs and strips are to be cut to the best advantage. To the squarer (cuadrador) the wages in the province of Gerona varies between 3 and 4 pesetas daily, whilst the cork-maker is paid according to the number of corks he makes.

It can easily be comprehended from what has been explained that excepting very thick, coarse cork, that machinery can not be well applied to cutting strips or making them into squares.

The squaring machine of Tousseau's system makes 14,000 squares a day. A clever workman can make about 5,000. The waste the machine makes with the cork is from 15 to 20 per cent.

Making corks.—The squares made into octagons pass into the hands of the workmen charged with making the corks, employing for this a knife composed of two pieces, one of them similar to an ordinary knife, and the other a blade the edge of which fits into the first.

Only by seeing can one form an idea of the rapidity with which these men take hold of a square and from it make a cork. They hold the knife by a small iron catch to the table in front of them, and giving to the square a circular movement or rotation more or less perfect, the result is that the cork is made in a few seconds.

It is well to put the squares to boil for about a quarter of an hour, more or less; they are then deposited in a cool place, and four or five days after they are assorted, dampening them once in awhile, until the workmen take them to cut them into corks.

It also requires great intelligence to choose properly the squares, since, if the squarer must examine with great care and attention the state of the cork to know what dimensions he must give it, the cork-cutter must also examine the cork to know what class of cork he can cut from a certain square.

The amount which the workmen receive for cutting 1,000 corks varies from 0.75 to 4 pesetas, according to the kind of workmen. This gives the medium price of 3 pesetas a day. These calculations refer to the workmen of the province of Gerona.

In the agricultural districts, close to where the home of cork industry is, the laborers make from 1.75 to 2 pesetas a day.

Different systems of machinery are employed to make corks, and all consist, at the base, in a knife, the blade of which is placed horizontally, joined generally to a piece of wood, and to which a back and forward movement is given similar to that of a carpenter's plane. In moving, the knife turns the square cork, which, being attacked by the knife, takes off a strip of cork ("palilla") more or less thick, according to the distance from the axle of the cork and the edge of the knife. If these are parallel, the result is the cork to be cylindrical, and if it is not, it becomes conical.

As I stated, in both cases one and the other must be on the same plane.

Cork-cutting machines.—Amongst the machines that give good results is the one of Nowé-Derbuel, with which can be worked corks of from 2 to 10 French lines (4.5 to 22.6 millimeters) of diameter, and one workman can make, or better still can average from 4,000 to 5,000 corks of 7 lines (15.8 millimeters).

The price of this machine at Marseilles is 250 francs.

The machine of Auguste Daumás is analogous to the preceding, and corks of from 10 to 50 lines can be worked (in diameter), or 22.6 to 113 millimeters, obtaining as a maximum in ten hours about 5,000 corks.

With the machines of Bourrelly, Raynaud, and Laugier, remarkable, amongst other qualities for the little noise it makes, they obtain 5,000 or more corks in equal time, and the price in Marseilles is 225 francs.

With the machine of Tousseau's system, as there is given a rotary movement to the rod to which is fastened the square cork, by means of ropes, the knife does not stick so easily, acting upon cork somewhat thick or coarse. As an average, they make about 4,000 corks a day, and the waste of the cork is about 45 or 50 per cent.

Another machine is Robert's, which is sold at San Feliú de Guixols at 250 pesetas.

In the United States they employ generally machines to make corks that the knife or cutting apparatus is in the form of a tube of the diameter of the cork required, and which turns at the rate of 2,000 revolutions in a minute.

During the summer of 1884, I saw at work at the house of the famous proprietor and cork merchant, D. José Barris (of Palafrugell), ten or twelve machines of Fauchet, which, it appears, did not give at first the good result that was expected of them.

I read in a newspaper, that according to news given last year, if I recollect right, by the Spanish consul in New Orleans, D. Arturo Baldasano y Topete, it appears that the director of the important cork factory, the Southern Cork Works, of said city, invented a machine called "hand and double revolution," with which, the inventor says, can be easily made 10,000 corks a day.

A good workman can make up to 2,000 (trefinos) corks, but generally only makes 1,000 to 1,400, receiving in the province of Gerona, as wages, 4 pesetas per 1,000.

Somewhat curious to relate, I read in a pamphlet "La industria corcho taponera" of D. José Gich and D. Manoel Fernando Gil, that D. Felipe Miguel, of Faya de Palafrugell, made 30,000 corks in a week.

The great quantity of cork wasted by the machines, and the necessity for the workman to examine closely the cork whilst making the corks, are the reasons why machines are not employed on cork destined to make "trefinos" or extra fine.

There is great demand for corks destined to stop-up the small homeopathic tubes, called "medias topeta," and for corks known by the name of "bondas" (of 35 to 50 millimeters in diameter), which, for barrels and jars of drugs, etc., are mostly used.

The machines are also employed to make corks destined for beer bottles and wines of little value, although few in Spain in comparison to other nations.

We have already seen how the machine invented by D. Francisco Vidal (of Gerona) worked, which serves to obtain from one cork two equal by employing a circular knife that cuts transversely to it, and to which movement is given by a pedal. This machine gives excellent results, the celebrated manufacturer of corks, D José Batet, having perfected it. With Vidal's machine an operator cuts in a day (ten hours) 50,000 corks, resulting 100,000. By hand a workman cuts in the same time 12,000.

In visiting the factory of Mr. Batet, in August, 1886, thirty-three machines were at work making corks by the system Nowé Derbuel, and four system Vidal, perfected by Batet. With the first men worked, and with the second, women. I also saw in said factory machines to stripe the cork, to cut squares (this last one not being used, because it gave bad results) to "caliber" corks, and two apparatus of H. Hemart (of Epernay, department of Marne) to mark corks.

Classification of corks.—The cork maker or workman has a large basket or several of them in which he places the corks according to size or quality; but this first classification is not sufficient, for which purpose they place the corks upon a table, the back part of which is furnished with boxes the front part of which is open to the operator ("triados") taking and classifying them with more care.

To classify the corks according to size, they also employ wooden boxes, the bottoms of which can be taken out or put in, having a kind of grating of wood somewhat like venetian blinds; the boxes are suspended by ropes to the ceiling and the workman gives it a swing back and forth, by which the smaller corks drop out at the bottom. With this apparatus worked by one man 100,000 corks are classified for their size in one day.

There are many machines for assorting corks, some of very simple construction; they have not been much adopted, although some of them, in my opinion, work very well. Amongst many of them the machines of Bussey and of Casanovas, in which there are no blinds, but the corks are thrown between two steel cylinders the axles of which are on the same level and forming a sharp angle, which permits the corks to fall or not, according to their size and position. In the second machine the cylinders are re-placed by truncated cones of wood (that can also be of metal). I saw in the factory of Mr. Barris a German machine in which, by means of a fly-wheel, a backward and forward movement is given to a small horizental box the bottom of which is formed of iron rods.

Another machine is to be seen at the house of D. Manuel Jubert (of Palafrugell) and consists of a cylinder with horizontal axle, like what is employed in some houses in the country or hamlets to sift flour, the lateral superfice of which is formed of frames to put and take out something like blinds, (called in Catalan "trillas").

The Bussey machine is worth about 600 pesetas. I think that those of Casanovas system cost somewhat less; the last one mentioned costs about 200 at the most.

The corks are washed in a solution of oxalic salt or bioxalate of potash. As soon as washed they are placed upon "zarzos" (esternedó's), a smooth plant, so as to dry gradually in the shade, so as not to lose the silky gloss which the cork has when it is damp. They are then passed to the workmen to classify, choosing those that look better or those that are the strongest or the softest, according to the request of the buyer.

I have already stated that the cork sometimes presents a defect known as "jaspeado" (taca) or jaspered, and the trefinos (extra fine) which have it do not serve to cork champagne bottles, because as this cork is but little elastic and with time still loses this quality, the result is that it allows the carbonic acid to escape. This the reason why said corks are put to an operation called "procédé," which consists in having them submerged in water for the space of two or three days, or less if the water is made hot, and but a few hours if the corks are operated upon by the Saleron machine, in which the water is at a pressure of five or six atmospheres. If after that time they are examined, being perfectly impregnated with water, one can observe in those with said defect stains of the color of chocolate, and the streaks which indicate the excrescences present themselves so confused in some that they are scarcely distinguishable. In proportion, as the cork dries, the stains then appear somewhat rugged, but the chocolate color disappears. Sometimes the jasper appearance reveals itself in the dry cork by black spots, which, however, excepting the bad color, does not diminish the value of the corks.

The corks which are jaspered are employed for the "tirage," that is, for the bottling of the champagne in its first wine operation, or for the time being.

As the carbonic acid of the champagne escapes on the parts between the cork and glass easier than through the center of the cork, Salleron invented a cork formed of six pieces of cork of a perpendicular rectangular parallelopiped shape, of which the lateral ones are of good cork, that is, without being jaspered, and those of the center and top part, which remain outside the bottle, are bad cork. Said pieces of cork are glued and joined together by the process Salleron; that is, employing a kind of gum or mastic, composed of caoutchouc dissolved in sulphide of carbon.

Prices of cork.—The classes and variety of corks manufactured are great, exceeding 130; but we shall only describe those most in use and in general terms, extracting from the important pamphlet of D. Manuel Jubert, entitled the Cork Industry (La industria taponeira). In the list of prices there has been a slight variation made, required by the difference of time and circumstances of the market.

Classes of corks and prices in the factory (province of Gerona).

Classes of corks.	Length.	Diameter.	Price per 1,000.
Half topetas:	*Millimeters.*	*Millimeters.*	*Pesetas.*
Homeopathic	22	5 to 10	1 to 5
Regular size	22	5 to 10	....
Long topetas:			
Regular size	44	10 to 16	....
Pointed	44	10 to 16	....
Short fine:			
Regular	32	20 to 23	....
Bottle	32	23 to 26	....
Short superfine:			
Half bottle	32	20 to 23	....
Bottle	32	23 to 26	....
Short fine pointed:			
Half bottle	32	20 to 23	....
Bottle	32	23 to 26	....
Lemonade:			
Half bottle finos	40	20 to 24	....
Bottle fine	40	24 to 26	....
Half bottle superfine	40	20 to 24	....
Bottle superfine	40	24 to 26	....
Middling and superfine	44	15 to 18	....
Fino regular:			
Half bottle	44	18 to 22	....
Bottle	44	22 to 25	....
Pointed half bottle	44	18 to 22	....
Regular pointed bottle	44	22 to 25	3 to 5
Demijohns	40	30 to 45	6 to 10
Model pints	44	18 to 20	7 to 9
Imperial pints half bottle	44	20 to 23	9 to 12
Bottle	44	23 to 25	10 to 15
Extra pints:			
Small	54	18 to 20	8 to 10
Imperials	54	20 to 23	10 to 20
Bottles	54	23 to 25	16 to 25
Champagne:			
A quarter bottle	54	27 to 29	16 to 25
Half bottles	54	29 to 32	25 to 40
Bottles	54	32 to 35	40 to 70
For tuns	85	35 to 50	Variable.

Packing.—For transporting cork they are collected in lots of 30,000, which constitute what is called a bale. The packing is made in common bagging cloth, in which the corks are placed. They are then covered with coarse packing paper which is impermeable, and the whole is introduced into another sack of closer woven hemp than the first. To this bulk is given the name of bale. The paper used is made in Bañolas (Gerona).

For South America and Oceania they make bales of 5,000 to 10,000 corks, and for England the sacks or bales are made to contain 100 gross, or 14,400 corks, for those of the larger size; and of 150 gross, or 21,600, for those of smaller dimensions.

Thus prepared, they place on each bale, in ciphers and large letters, generally black, the numerical order and the initials of the exporter, and sometimes the initials of the locality of the house consigned to.

MANUFACTURING CENTER AND CORK MARKET.

The greatest number of corks are manufactured in Spain in the province of Gerona. Ayrens de Mar has also acquired some importance in the cork industry; San Celoni y Tordera; all the province of Barcelona, as also in some towns, few it is true, of Andalusia and Extremadura.

The most important towns with regard to manufacturing corks are, San Filieu de Guixols, Palafrugell, and Cassá de la Selva, in the province of Gerona.

The total of corks made in Catalania is, according to the indications of Don Manuel Jubert in before-mentioned pamphlet, 4,200,000 kilograms, which at the price of 12 pesetas the 1,000 corks makes about 7,000,000 pesetas.

According to the data given by Don Salvador Cerön and in the work of Don José Jordana, "Notas sobre los alcornocales y la industria corchera de la Argelia" (notes upon the cork trees and cork industry of Argel), the number of corks made in the province of Cadiz during the year was 1,679,000 kilograms, which amount to 11.25 pesetas the 1,000, or 1,642,500 pesetas.

The number of workmen employed in the province of Gerona and Barcelona in the cork industry (scrapers, cork-makers, squarers, bleachers, weavers of hemp cloth, etc.), exceeds 8,000 (8,228 according to Mr. Jubert); in the province of Cadiz, according to Mr. Cerón, there are 400. The number of workmen engaged in the cork industry in Spain is not less than 12,000.

The principal cork markets are: London, Paris, Reims, Epernay, Maguncia, Dresden, New York, San Francisco, Buenos Ayres, Calcutta, Sydney, Melbourne, Yeddo, and some other cities.

Catalonia, on account of its cork industry, is in mercantile relationship with various nations, very far off, as I could very easily prove by a map in my possession stating the localities to which Catalan exporters send their cork, and also the manufacturers.

There can be seen in the above-mentioned pamphlets of Messrs. Jubert, Gich & Gil the export of cork from Palafrugell, Palamos, and

San Feliu de Guixols to different cities of Europe. From Palafrugell to London by land to Flassa, according to whether it goes via Bordeaux or Boulogne, they pay respectively the 100 kilograms, 25 and 16.50 pesetas. Sometimes the corks are sent by sea, and then they are embarked at Palamos or at San Feliu de Guixols, thence going direct to Cette.

According to accounts of a house of Palafrugell, the transport of 100 kilograms of corks from that place to San Francisco via Liverpool amounts to 37.66 pesetas. The 100 kilograms of corks are worth 500 pesetas if of superior quality, and 200 if of inferior.

I shall now dwell upon a subject that equally interests the seller and the purchaser of corks when they have to be taken to great distances.

About September of 1886, a gentleman sent corks which were attacked by larvæ (which on being examined were found to be perfect insects of the *Dermestes vulpinus* kind), as was shown by the judicial investigation made; it was suspected that the shipment might have been made by the exporter of a large quantity of cork from Palafrugell to Hamburg; but the case was proved that said corks were packed and sent out of the factory without the least sign of being attacked, and from that moment, owing to the reputation of the exporting house, and from seeing proofs of the existence of said insect, and that none of their remaining cork was attacked, they proved their non participation in the case. The consignees of Hamburg having received the cork very much damaged on account of said insects, made claim—as was natural—for damages, which, I understand, was satisfactorily arranged, it having been proved by the corks of the same lot in the factory not being damaged that the insects had been met with during the voyage. This coleoptera locates itself in the houses and under the carcasses of small dead animals, and is mixed up in commerce all over the globe, and has established itself as a domestic animal in the warehouses in mercantile towns, in the wharves, the docks, and in some of the merchandise of the railroad wagons and on board ships. In the larvæ state they attack skins and other dry animal substances, or in a state of decomposition, and a case is cited where the ship-load of cork being attacked by these insects they also attacked the ship's timbers.

CUSTOMS TARIFF ON CORK.

As a general rule, cork in slabs does not pay importation in foreign nations, though bottle corks do, being free of entry in England and Norway.

The import duty on corks is: In Germany, for 100 kilograms 10 marks (12.50 pesetas); in France, 5 francs (5 pesetas) for corks whose length is less than 50 millimeters, and 20 francs if greater; in Russia, for an equal weight they charge 13.89 rubles (55.58 pesetas), and in the United States the duty of importation is 25 per cent. ad valorem.

The datas which I insert in continuation, respecting the annual exportation through the custom-houses of the Peninsula and Balearic Isles of cork in slabs and bottle cork, I extract from a book giving the statistics from 1871 to 1882, the middle term during those dates differing but very little from what would be obtained if the following years were to be taken to account. As a medium term to the above twelve years the annual exportation of slab cork was 1,947,039 kilograms, the value of which was about 935,104 pesetas, resulting in 0.48 to the kilogram; that of the corks was 1,209,290, valued at 15,162,480 pesetas, which result at 12.54 pesetas for 1,000.

From a statement in the above-named pamphlet of Messrs. Gich & Gil, it results that the middle term of the cork imported into Spain in the ten years from 1873 to 1882 was 1,451,690 kilograms, the duties of which, according to the tariff, amounted to 95,849 pesetas.

The consumption of corks in Spain is at the most about 10,000,000.

THE USES OF CORK.

Although what gives more value to cork are the bottle-corks, still it has other applications, some of considerable importance, such as plates or slabs for use on boilers, room carpets, the making of rugs, life-preservers, cork-dust bricks, hats, album covers, picture frames, jewel boxes, bracelets, and other objects of adornment; soles for shoes and boots, wheels of small dimensions for railroad cars, in the grease-boxes of the wagons; and recently it is applied as "Corcho larminado," or ornamental slabs, the invention of Don Buenaventura Reull (of Barcelona), which is employed to cover plain surfaces and curves, employing them as carpets and for other uses. They make, moreover, according to what I read in the number of the La Reforma Agricola of the 5th February, 1883, huts for those who work at cork, and in Turkey they make cork coffins. In Italy they make images and crosses, shoes, horse-saddles, horse shoes, arms, blacking, fortifications, furniture, soles for shoes, wadding for mortars, and to obtain lamp-black for printing in the United States.

A very noteworthy artistical piece of work which was exhibited at the Universal Exhibition of Barcelona was the "Cuadro heraldico cronologico de España," engraved in cork, and the result of fourteen years of persevering work of Doctor Don José Marti y Vintro (of Palafrugell). It is a matter of anxiety to know whether this precious work of art will be bought by the Government, or allowed to pass into the hands of strangers.

The round or hollow cork is especially employed in the province of Valencia to husk rice. It is also used for bee-hives, pans, and pails to deposit or carry milk; in ornaments in gardens, for relief maps to form the elevations, for floats in fishing apparels, for pails where they cool water with ice or snow, etc. From the imperfect combustion of cork is obtained Spanish black, a product much esteemed for making printers' ink.

The fire-place to heat water in which cork is boiled is supplied with the refuse of cork.

GENERAL CONSIDERATIONS.

By cork industry must be understood all the operations tending to give the cork the best conditions for any application whatever, and for the object herein proposed I consider included the barking of the tree, as the number of men employed in the different operations and the time employed I consider of great importance.

We have already seen that the value of cork exported annually from the Peninsula and Balearic islands exceeds 15,000,000 pesetas; and it is well to observe that corks occupy the fourth place of importance amongst the Spanish exportations.

I shall now copy the continuation of the table inserted in the above mentioned "Memoria La Industria corcho-taponera" of Messrs. Gich & Gil relative to the production of secondary cork on account of its importance:

	Quintals	Quintals.
Catalonia	150,000	
Andalusia and Extramadura	450,000	600,000
Portugal		400,000
France and Corsica	200,000	
Algiers	300,000	500,000
Italy, Sicily, and Sardinia		150,000
The Empire of Morocco		10,000
Total		1,660,000

It can be seen by this table that the total production of cork exceeds 1,500,000 quintals (Catalan weight), of which more than 500,000 belong to Spain, and it is probable that it reaches now in Spain to about 800,000 quintals (a Catalan quintal = 41.06 kilograms).

With the valuable information and notes afforded us by the celebrated manufacturer and cork merchant Don José Genis, we also find notice that the lowering of the price of cork took place in the years 1876 to 1879, being about 5 pesetas per quintal; it rose about 7 pesetas from 1880 to 1883; but since 1884 the price has steadily lowered, having diminished somewhat more than 7 pesetas.

As a medium price of different sales made from 1874 to 1886 by more than one hundred and twenty proprietors of the province of Gerona, the result is that the lowering of the price of cork per Catalan quintal was 7.74 pesetas. Of these 6.25 pesetas are considered as produced by the crisis which the cork industry suffered some years back, and the difference of 1.49 is considered as the loss in valuation caused by employing cork of too young a growth as effected by many proprietors for the purpose of increasing their revenue. Taking a round account, and as an approximation, it can be said that the price of cork per Catalan quintal, in reference to the time above mentioned, oscillated between 30 and 22 pesetas. During the years 1760 and 1790 the quintal of cork in the province of Gerona was worth 1.50 pesetas, and to-day in the same region of the Pyrenees it is worth from 15 to 20 pesetas the inferior, and 40 to 50 the superior. About the year 1830 the quintal of cork in said province was bought for 10 pesetas, and to-day it is worth three or four times more.

The different cork operations, and the taking of it to market, gives work during four or five months, from the latter part of spring to the beginning of fall, to thousands of persons, and if to these are added those employed in preparing the cork, or in working it for other purposes than for making bottle corks, and those that live on the profits made from the riches to be obtained by the cork industries, it can well be said that in Spain about 200,000 persons, or 40,000 families, live by the cork industry, belonging principally to the provinces of Gerona, Barcelona, Andalusia, and Estremadura.

THE CORK CRISIS IN GERONA.

The cork industry had its origin or appeared in Spain (in the province of Gerona, in the town of Llagostera, according to some) towards the latter part of last century, about 1750. At the beginning of the war of independence there were already a few cork factories in Llagostera, though they made only those kinds of corks called "finos, bajofinos y comunes;" that is, fine, underfine, and common. During the war the little industry that existed then became paralyzed, taking shelter in a few houses in the mountains; but at its termination the cork industry again took an impulse, and a person by the name of Carbó began to manufacture "trefinos" (extra fine) about the year 1835. The corks were sold generally in the French market of Bellcaire.

About the years 1828 and 1829 several Frenchmen went to Catalonia to buy cork and take it to their country, which being repeated a few years later caused a revolt amongst the workmen against the Frenchmen, prohibiting their embarking the cork; but, government taking some active measures, the difficulties which had excited the workmen were arranged, and the cork industry took great development about the years 1849 and 1850.

The cork industry has passed through various vicissitudes since 1850 up to the present crisis. This is caused, first, by the manufacturing of common corks by machinery in other nations; secondly, the custom-house tariff imposed upon Spanish cork by foreign nations; and, thirdly, the opposition which is made to cork for soda-water bottles, lemonade, beer, and common wines, by employing porcelain, caoutchouc, glass, and other materials.

The last of these causes alone, according to some, has caused the lowering of common cork about 30 per cent.

As a cause of minor importance, though not to be despised, can be mentioned the making of corks by inferior workmen, the workmen trying to become manufacturers with scanty capital, and the failures.

At the present time only the superior quality of cork has an assured sale in the foreign market; champagne cork ("trefinos"), medium, large, and model, and to some extent homeopathic corks and bungs for hogsheads, as the two qualities are made by machinery.

By what is shown above the common cork, which constitutes two-thirds at least of the Spanish product, and perhaps four-fifths of all that is consumed by the cork industry, finds very little or no sale. This state of affairs ought to be remedied by the application of good practical means for the cultivation of the cork trees.

By good luck, since 1887 the increase in the price of cork of superior quality commenced and continues rising, owing to the demands made by several merchants of the United States of which, notwithstanding the 25 per cent. ad valorem with which corks are rated, the cork industry of North America can not supply the demand. It is calculated that the consumption of the great Republic daily amounts to 200 "balas" of corks, which at 100 pesetas each amounts to 20,000 pesetas. Moreover the cork from Spain exported to the United States represents a value of $1,200 to $1,700,* according to the indication of the before-mentioned consul, Señor Baldasano Topete.

Of the numerous and conscientious experiments made by Don J. Mandevall to verify the quality of cork as regards the jaspeado or jasper, or, that is, to know the quality or benefit derived by the application of this material for extra fine corks the result is: Catalonia cork, from 35 to 40 per cent. good, no jasper; from Andalusia, Extremadura, and Valencia, from 25 to 30; from Portugal from 20 to 25; from Corsica Sicily, and Sardinia, from 18 to 22; from Africa, almost nothing.

As will be observed, the Spanish cork is superior to all others in quality; as also that the cork of Africa, at least with that with which the experiments were made (and I suppose it was from different localities), does not answer for extra fine. It can be explained, perhaps, partly by its having bad qualities, that of Algeria, which is perhaps the kind employed for the experiments on account of its having been raised from shoots or branches and having grown with rapidity, as also inequality on account of different conditions hygrometric and calorific of the winds, according as they come from the Mediterranean or blow from the desert of Sahara.

I do not doubt but that the owners of those far-off cork plantations of Africa will seek to cultivate them in the most convenient manner possible, so as to ameliorate the quality of said product in the way followed some years back with great advantage to the cork trees by D. Victoriano Pratx in his plantation of trees, which numbers about 6,000 to 8,000 hectares of land, near Philippeville, the one near to Bona, and in the street of D. José Barris, of about 11,000 hectares divided into eight sections.

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* Imports of unmanufactured cork in 1889 amounted to $902,047. The Treasury returns make no mention of any imports of manufactured cork.—[Note by the Department.]

In view of the preceding considerations we see the means of developing and increasing the cork industry, one of the truly indigenous kind, and which is more in advance in Spain than in any other country; an industry susceptible of much progress in Spain, not only on account of the great experience of laborers and manufacturers, but also of the cork merchants, and the fact that about 90 per cent. of all the cork obtained in the world belongs to Spaniards, of which the majority are Catalans.

To find a remedy for the crisis of the cork industry there must be a co-operation of government with the manufacturers of corks, proprietors, and also to some extent with the laborers.

The government should first procure the free introduction of cork in all nations, principally into the United States, Germany, and France; secondly, cause to be studied by the "ingenieros de montes" (mountain engineers) everything tending to ameliorate and increase the production of good cork, and would be very beneficial to create a cork station in the province of Gerona; thirdly, to duly recompense by means of premiums those who best cultivate cork plantations, and to those who have introduced any noteworthy modification in the operations of cork making or in any application for cork; fourthly, cause to be observed the shooting laws, so as to spare the insectivorous class of birds; and, fifthly, to favor the glass manufactories, so that the greater part of the wine produced be bottled.

As to the manufacturers, they ought to employ their machinery for corks of inferior quality, such as the market demands (and which is being done with excellent results, for the half butts and hogsheads), and see that the corks of inferior class made by hand be done by intelligent workmen and not by those ignorant of the business.

It also belongs to the proprietors of cork plantations to preserve said property, not unbarking the trees unless the cork be in a proper condition. They ought, moreover, to associate themselves, in order to attack conjointly the plague of insects, not permitting on their property the destruction of animals that are useful to the cork trees, above all to birds of the insectivorous kind.

The workmen of the cork industry ought to continue in the good traditional harmony which exists between them and the manufacturers, associating themselves to establish the factory rather than try to do it individually with scanty means.

CONCLUSION.

The short space of time at my disposal, in order to collect the materials which have served for this work and not exceed the amount of writing which I had proposed, considering the amount of information received, is the reason why I omitted some further information which, though not of absolute necessity, would be of some utility. Still, I think enough has been said on the subject of cork and the cork industry in order to show the general importance of a plant of scanty value formerly and at the present time so appreciated, and of an industry which constitutes great wealth for the Spanish nation, and susceptible of much more development, and a powerful means for the welfare of various districts.

FRED. H. SCHEUCH,
Consul.

UNITED STATES CONSULATE,
Barcelona, July 4, 1890.

MAZARRON.*

REPORT BY CONSUL MOLINA, OF CARTHAGENA.

The port.—The Puerto de Mazarron, as its name implies, is the port of the town of Mazarron, which lies 5 miles up-country in the mining district bearing the same name.

This port is situated on the shore of the Mediterranean, about 16 miles east of Carthagena, at the head of a fine bay formed by Cape Finoso on the west and the light-house rock on the east.

It is a very good port, with excellent holding ground for vessels at anchor. The custom-house is of the third class.

Imports.—In British bottoms: Coal and coke, 31,595 tons; slag, 1,900 tons. In other foreign bottoms: Deals, slag, and railway materials.

Exports.—In British bottoms: Silver lead, 9,942 tons; iron ore, 31,690 tons. In other foreign bottoms: 6,205 tons of silver lead; 582 tons silver lead ore, and 6,550 tons of iron ore.

Shipping.—Fifty British steamers cleared during the year with a total net register tonnage of 40,647 tons, as compared with forty steamers with net register tonnage of 32,315 tons during 1888.

Silver lead.—The total output of the Mazarron mines during the year was about 42,272 tons, containing on an average about 60 per cent. of lead and 55 ounces silver to the ton of ore.

Lead works.—The lead works of the Compañia Metalurgica de Mazarron, established about five years, are among the finest and most important in Europe. That company are the sole producers of lead in that district, and their output is steadily increasing. The lead is exported to Antwerp and St. Nazaire, but the greater part to the former port.

Iron ore.—Only small quantities have been shipped direct to the United States. The bulk of exports have been from the "Mino Fragua," loaded at La Calera, on the opposite side of the bay, and from the Parazuelos mines, loaded at Parazuelos, vessels from either place being cleared at Puerto de Mazarron.

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* Mazarron, or Almazarron, is 20 miles from Carthagena, and thus within Consul Molina's jurisdiction. This is the first report which has appeared in these publications giving any trade statistics of the place. [Note by Department.]

Morata Valley Mining Company.—This company was established about eighteen months ago, with a nominal capital for opening up the mines of the mining district (Morata Valley). A railway has been constructed from said mining district to the sea at Perehelos, but up to the present no further operations have been seriously taken in hand.

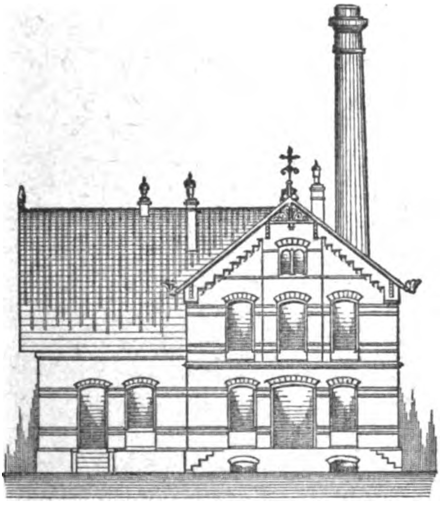
C. MOLINA,
Consul.

UNITED STATES CONSULATE,
Carthagena, April 1, 1890.

A GERMAN DAIRY ASSOCIATION.

REPORT BY CONSUL-GENERAL EDWARDS, OF BERLIN.

The Dairy Algermissen, in the province of Hanover, is capable of consuming daily 4,000 to 4,500 liters of milk. The machinery is described as being both good and practical. The steam-power used is supplied by an 8-horse power steam-boiler and a 6-horse power steam-machine, which drive two large Danish A. A. centrifugals (preparation is being made for the erection of a third), two 400-liter butter machines, a butter-working machine, and a water-pump. In the cheese-making department there are three cheese tubs, each holding 1,200 liters,* for the manufac-



GENERAL VIEW.

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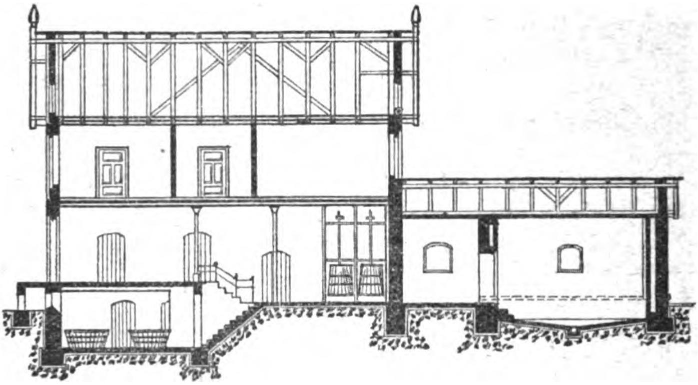
* Liter = 2.113 pints.

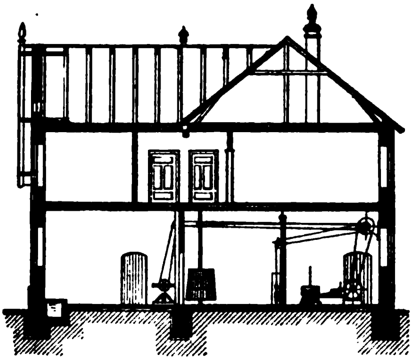
ture of curds. In the attic are two cold-water reservoirs, each holding 2,000 liters, and in the machine room a warm-water reservoir, which is heated by the exhaust steam.



LONGITUDINAL SECTION.

Great care has been given to ventilation and drainage. The usually arched ceiling between the T-beams is level and finished in concrete by A. Peter, of Hanover, who also built the water basin for keeping the cream cool, the floors and the staircases in the best style.

The design was supplied by the architect, J. Stübe, of Harsum, near Hildesheim, under whose superintendence the building was most carefully erected.



CROSS SECTION.

Business was begun in September, 1889, with 1,000 liters of milk and at present 3,400 liters are delivered. After deducting 1 pfennig per liter, which goes to cover business expenses, which at present amount to from 18 to 20 marks* per day, and interest on capital invested, 8.9 pfennigs are paid per liter of milk. Half of the butter is sold in the province and half in central Germany. The skimmed milk is partly sold and partly used as slops. Whatever can not be used in the factory goes to the stockholders gratis. The letters in the ground plan given above denote the different rooms, and the chief articles contained therein:

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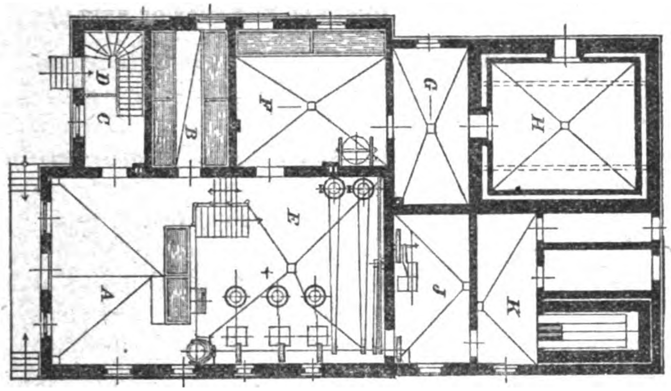
* Mark of 100 pfennigs = 23.8 cents.



GROUND PLAN.

A, room for receiving milk: 1 pair milk scales, 1 full-milk tank, 1 Pasteurisier apparatus, 1 skimmed-milk tank.

B, full-milk (unskimmed milk) cooling room: 4 tanks after Swart's system for noon and evening milk.

C, office.

D, staircase.

E, centrifugal room: 1 Temperier apparatus, 3 A A centrifugals 2 vertical butter-machines, 1 water-pump.

F, butter-working room: 1 butter-working machine, 1 butter-tub, 2 cream-tanks.

G, butter store-room.

H, ice-house.

J, steam machine room: 1 horizontal, 6 horse-power, high pressure steam machine, 1 warm-water reservoir.

K, boiler room: 1 8-horse-power Galloway boiler, 14.75 square meters of heating surface.

Two cold-water reservoirs, each holding 2,000 liters, are in the attic, In every business room there are steam and cold and hot water pipes. Under rooms A, B, C, and D are cellars for curd-making, and other purposes.

W. H. EDWARDS,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Berlin, June 30, 1890.

THE GERMAN BEER INDUSTRY.

REPORT BY CONSUL-GENERAL EDWARDS OF BERLIN.

While Bavaria, Würtemberg, Baden, and Alsace-Lorraine have, each for itself, a special beer tax, the remainder of Germany lying within the customs district is subject to a brewery tax for the account of the imperial treasury. This district was materially enlarged during the year by the admission of Hamburg, Bremen, and certain parts of Prussia and Oldenburg, representing thirty-eight breweries, six in Altoona and Wandsbeck, seventeen in Hamburg, and fifteen in Bremen. One-half of these—six in Altoona and Wandsbeck, seven in Hamburg, and six in Bremen—brewed highly fermented beer, while the other half—ten in Hamburg, and nine in Bremen—produced underfermented sorts.

From October 15 (the date of the admission of Hamburg, Bremen, etc., into the customs union) to the end of the fiscal year (March 31) these breweries produced 107,039 hectoliters * of highly fermented and 262,099 hectoliters of underfermented beer, a total of 369,138 hectoliters, the tax amounting to 272,373 marks and the rebate of taxes on exported beer being 4,858 marks. How great was the consumption of beer in those places may be seen from the following figures: In 1887, 419,603 hectoliters were imported into Hamburg, of which a very small part was again exported. In Bremen, exclusive of what was afterwards exported, 42,751 hectoliters were imported. In the same year, 620,966 double centners † were exported from the customs district to those parts of Germany outside of the customs frontier, this being almost one-half of the total export, 1,314,762 double centners.

From the official reports it appears that the German beer production, which in the preceding year had risen, increased again in the fiscal year 1888–'89, although the consumption was interfered with by the unfavorable weather of the summer of 1888, and also by the good fruit crops. In general, the increase in the use of beer may be attributed to the improvement in trade, and most branches of industry which, by giving the people employment, increased their powers of purchase. Moreover the rise in the cost of spirits tended to increase the consumption of beer, although it is stated that, in the districts where spirits are the popular drink, while the demand therefor was more restricted, the use of beer did not materially increase. The increase in the beer production in 1888–'89 was confined entirely to the underfermented (untergährige) sorts; the highly fermented beers having fallen off in amount. This was due, in part, to the bad weather which was unfavorable to the consumption of highly fermented (obergährige) beers; but chiefly to the growing popularity of the underfermented sorts whose sale by the breweries was increased through depots in other places, discounts to dealers, etc., and particularly through the growing popularity in town and land of bottled beer. As a consequence, the smaller breweries of the highly fermented sorts decrease both in number and in amount of production.

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* Hectoliter = 26.415 gallons.

† Double centner = 220.5 lbs.

The grain crop was bad and the quality of the barley raised within the brewing tax district was not nearly what might be desired, consequently large quantities were imported from South Germany, Bohemia, and Moravia and small quantities from Denmark and Russia. Large quantities of ready-made brewing malt were also imported from Austria.

The use of malt surrogates increased, particularly, the use of rice, sugar, and others not mentioned by name. In consequence of the rise in the price of sugar maltose sirup was more generally used.

Rice, in the form of flour or broken grains, the waste from the Bremen rice mills, is used only in the manufacture of the underfermented beers light in color. The higher price of this in comparison with barley is offset by the fact that in the malt process the latter loses 30 per cent. in weight while the former in grinding suffers no loss. The addition of beer colors serves to give the proper color to the beer instead of malt. For the same purpose color-beers are manufactured in special breweries, which beers are not classified as malt surrogates but are taxed as finished beers of malt and hops.

Hop culture is not largely carried on within the limits of the brewing tax district and only in certain localities is it of any importance. These are the districts of Osterode and Johannisberg in East Prussia; Poerlitz in Pomerania; Neutomischl, Graetz, Wollstein, and Maseritz in Posen; the Altmark in the province of Saxony; Lueneburg in Hanover; the governmental district of Hohenzollern, part of the grand duchies of Hessen and Oldenburg and a small part of the duchy of Brunswick. The price of hops in the province of Posen, where the quality was below the average, was tolerably high immediately after the harvest (best 300 marks, middle 140 marks per 100 kilograms), but it soon fell (best 180 marks, middle 60 to 80 marks, ordinary 40 marks). Prices elsewhere were: Allensteiner (East Prussia) 100 to 160 marks; Poerlitzer, 20 to 100 marks; Altmark, 80 to 100 marks; Dannenberger, 80 to 140 marks; Hohenzollern, 110 to 180 marks; Hessian, 120 to 220 marks; Ammerland (Oldenburg), 70 to 100 marks, and Brunswick, 140 to 160 marks. The greater part of the hops used in the brewing tax district, and particularly that used for the better beers—came from Bohemia and Bavaria.

As above indicated most of the highly fermented beers were made in small rural breweries and consumed by the country population. Certain popular sorts are, however, an exception to this rule. These are manufactured in large well regulated breweries and are largely consumed by the city population. This is particularly the case with Berlin white beer and the so-called Graetzer beer which is made in the province of Posen. As specialties in some towns highly fermented beers very rich in malt, are made which, in part (as the Danzig "Jopenbier" and the Bremen "Seefahrtsbier") are meant for export or for use in provisioning ships, and in part for household and medicinal purposes (as the Brunswick "Mumme").

Of the underfermented beers there are three principal sorts, "Schank" or young beer, common lager beer, and the finer, stronger, lager beers (export beer, Bock beer, Salvator beer, Maerzen beer, etc.).

One hundred kilograms of malt (used in the manufacture of highly fermented beers) mixed with sugar, sirup etc., produce from 6 to 18 hectoliters of common and from $2\frac{8}{10}$ to 7 hectoliters of strong beer (porter, double beer, etc.).

Of the underfermented beers 100 kilograms of malt make $2\frac{1}{2}$ to 5 hectoliters of good lager beer, 4 to 6 of common lager, and as much as $9\frac{2}{10}$ of "Schank" beer.

Owing to competition, domestic and foreign, brewers were compelled to drop their prices and, as an offset, to lighten their beers. The fall in prices, however, has been chiefly in the form of larger discounts to large buyers. It is also noted that prices vary in the same brewery according to the amount ordered, the responsibility of the buyer, competition, and the cost of transportation. Average prices were as follows: In barrels of 1 hectoliter, highly fermented beers, common sorts, 6 to 12 marks; better sorts do., 12 to 18; Berlin white beer, 11 to 15; Graetzer, 13; underfermented Schank, 13 to 17; common lager, 16 to 20; better sorts, 20 to 25.

The former important exportation of bottled beer to Japan fell off materially, owing to the establishment of breweries in that country. The export to France and Belgium also decreased.

Since the entrance of Bremen into the Customs Union (Oct. 15, 1888) two breweries which manufacture only export beer, shipped from that city 45,000 hectoliters of beer.

From Würtemberg it is reported that the decrease in beer production was due to the good fruit year, wine being cheap and the fruit crop larger than it had been since 1847.

From Alsace-Lorraine it is reported that the consumption of beer during the fiscal year 1888–'89 was 876,640 hectoliters against 868,462 hectoliters in the preceding year. The decrease in the number of breweries in Alsace-Lorraine is due to the competition of better arranged breweries in Baden and Bavaria. Hop culture is chiefly carried on in the district of Hagenau and on a smaller scale near Strassburg, Colmar, Muelhausen, Muenster, Saarburg, and Saargemuend. In the first-mentioned district 2,868 hectares were devoted to hops against 2,462 in the preceding year when the average production per hectare was 925 kilograms.

The Alsatian barley crop was very unsatisfactory in 1888 as was also the French, the Hungarian being best.

The average price of Alsatian hops per 100 kilograms was 90 marks; Bohemian, 225; and Bavarian, 167.50.

The exportation of Alsatian beer has year by year decreased, owing to competition, the high protective French duty and the preference for Bavarian beer in France, which was formerly the chief consumer of Alsatian beer.

BEER BREWING IN BAVARIA, WÜRTEMBERG, BADEN, AND ALSACE-LORRAINE.

Breweries.	Number.	Malt consumed.
Bavaria (calendrr year 1888).		
Brown beer:		*Hectoliters.*
Private	4,718	4,621,821
Stock companies	52	1,048,161
Communal	536	342,476
	5,306	6,012,458
White beer	1,625	51,446
Total	6,931	6,063,904

Production of beer:	Hectoliters.
Brown beer	13,306,403
White beer	213,757
Total	13,520,160
Importation of beer:	
North German States	6,384
Baden, Würtemberg, Alsace-Lorraine	33,629
Foreign countries	2,380
Total	42,402
Exportation of beer:	
North German States	1,412,863
Baden, Würtemberg, Alsace-Lorraine	271,919
Foreign countries	175,822
Total	1,860,604

	Marks.
Beer tax	36,506,245
Export rebate	4,719,518
	31,786,727
Tax on imported German beer	130,050
Duty	11,724
Total revenue from beer	31,928,501

Detached parts of Bavaria (in the Grand Duchy of Saxe-Weimar and the Duchy of Coburg-Gotha):

Brown beer breweries (private, 8; commercial, 10; 18):

	Hectoliters.
Malt consumed	2,235
Beer production	5,631

Würtemberg (*fiscal year April* 1, 1888, *to April* 1, 1889).

Private breweries	5,285
Professional breweries	2,383

Amount of malt used, 772,586 (100 kilograms); amount of malt surrogates used, 2,936 (100 kilograms). Of the surrogates, 2,924 (100 kilograms) were rice, and 12 (100 kilograms) colors.

Beer produced:	Hectoliters.
Highly fermented (obergährigen)	107,771
Under fermented (untergähriges)	3,046,740
Total	3,153,511

	Marks.
Beer tax	7,759,612
Export rebate	135,898
	7,623,714
Tax on imported German beer and malt	183,973
Duty on foreign beer	57,808
Total revenue from beer	7,865,495

Baden (*tax year December* 1, 1887, *to November* 30, 1888).

At the close of the tax year 1887–'88, there were on hand 1,958 barrels with a total contents of 27,057 hectoliters. Amount of beer produced, 1,508,704 hectoliters.

	Marks.
Beer tax	4,827,854
Rebates	315,457
	4,512,397
Tax on imported German beer	466,528
Duty on foreign beer in Imperial fiscal year 1888–'89	11,506
Total revenue	4,990,431

Alsace-Lorraine (*fiscal year April* 1, 1888 *to March* 31, 1889).

At the close of the fiscal year there were in towns one hundred and sixteen, in the country one hundred and fourteen, together two hundred and thirty breweries. Of these, during the year, only one hundred and sixty-nine were in operation, of which fifteen produced highly fermented, and one hundred and fifty-four other beers. Twenty-one of these breweries produced "thin beer" at a lower tax rate.

Production of Beer:	Hectoliters.
Highly fermented (obergährigee)	13,530
Under fermented (untergähriges)	714,076
Thin beer	31,652
Total	759,258
Beer importation:	
Other parts of Germany	226,965
Foreign countries	1,758
Total	228,723
Beer exportation	111,341

	Marks.
Revenue from beer tax:	
At the rate of 2.30 marks per hectoliter	1,651,848
At the rate of 0.58 marks per hectoliter	18,275
	1,670,123
Export rebate	256,086
	1,414,037
Tax on imported German beer	522,019
Duty on foreign beer	10,554
Brewery license	6,449
Total revenue from beer	1,953,059

Production of beer in Germany.

Fiscal year.	Brew-tax district.	Bavaria.	Würtemberg.	Baden.	Alsace-Lorraine.	Total.
	Hectoliters.	*Hectoliters.*	*Hectoliters.*	*Hectoliters.*	*Hectoliters.*	*Hectoliters.*
1872	16,102,179	10,905,836	4,197,274	926,957	812,454	32,944,700
1873	19,654,903	11,256,208	3,995,056	1,094,634	987,752	36,988,553
1874	20,494,914	12,079,760	3,596,144	1,133,865	889,191	38,193,874
1875	21,358,228	12,084,910	3,662,418	1,066,661	763,313	38,935,530
1876	20,873,379	12,347,153	3,879,006	1,050,841	706,694	38,857,073
1877-'78	20,360,491	12,205,377	3,801,519	1,098,500	803,136	38,269,023
1878-'79	20,371,925	12,122,483	3,067,305	1,085,020	787,905	37,434,638
1879-'80	19,984,613	12,152,532	3,172,634	1,085,655	788,542	37,183,976
1880-'81	21,136,031	11,826,764	3,396,292	1,155,450	982,659	38,497,196
1881-'82	21,315,982	12,341,574	3,247,711	1,188,843	941,363	39,035,473
1882-'83	22,113,180	12,112,567	3,041,857	1,167,213	815,631	39,250,448
1883-'84	23,391,919	12,265,412	3,083,823	1,220,728	823,826	40,785,208
1884-'85	24,613,427	12,608,528	3,027,587	1,235,815	801,717	42,287,074
1885-'86	24,290,689	12,665,665	2,878,754	1,244,485	690,718	41,770,311
1886-'87	26,565,546	13,096,237	3,305,665	1,301,545	719,207	44,988,200
1887-'88	27,475,846	13,704,817	3,558,075	1,484,477	778,413	47,001,628
1888-'89	28,665,675	13,525,791	3,153,511	1,508,704	750,258	47,602,939
Average	22,279,937	12,311,860	3,466,545	1,179,376	814,781	40,052,499

Production and use of beer in Germany and the Grand Duchy of Luxemburg.

Fiscal year.	Amount produced.	Import.	Export.	Amount consumed.	
				Total.	Per head of population.
	Hectoliters.	*Hectoliters.*	*Hectoliters.*	*Hectoliters.*	*Liters.*
1872	33,544,700	57,446	317,229	33,284,917	81.7
1873	37,684,386	70,383	311,741	37,449,028	90.6
1874	38,887,539	106,424	344,791	38,649,172	92.6
1875	39,605,078	128,195	416,196	39,317,077	93.3
1876	39,507,897	141,507	614,423	39,034,981	91.6
1877-'78	38,921,012	123,624	707,671	38,336,965	88.7
1878-'79	38,810,738	111,096	725,264	38,196,570	87.4
1879-'80	37,243,030	93,952	724,231	36,612,751	82.8
1880-'81	38,572,121	100,986	889,817	37,783,290	84.6
1881-'82	39,109,178	102,842	1,023,580	38,188,440	84.9
1882-'83	39,323,968	107,681	1,034,902	38,396,747	84.8
1883-'84	40,873,112	115,818	1,123,372	39,865,558	87.5
1884-'85	42,373,656	112,430	1,200,090	41,286,026	90.0
1885-'86	41,857,098	111,319	1,249,697	40,718,720	88.0
1886-'87	45,068,030	135,164	1,070,993	44,132,201	94.6
1887-'88	47,094,377	142,422	1,064,236	46,172,563	98.0
1888-'89	47,696,195	165,939	947,128	46,915,006	97.9
Average	40,363,068	113,719	809,727	39,667,060	89.4

German revenue from the beer tax.

Fiscal year.	Brew-tax district.	Bavaria.	Würtemberg.	Baden.	Alsace-Lorraine.	Total.
	Marks.	*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*
1872	14,444,200	17,148,500	5,487,500	2,169,300	1,272,300	40,521,900
1873	17,193,400	18,568,400	5,607,100	2,551,800	1,843,900	45,764,600
1874	18,525,300	18,888,900	5,246,000	2,594,300	1,552,900	46,807,400
1875	19,144,900	19,433,000	5,140,700	2,465,300	1,346,100	47,530,000
1876	19,069,400	19,902,700	5,737,500	2,417,900	1,118,100	48,245,600
1877-'78	18,719,400	19,921,800	5,555,900	2,534,300	1,348,900	48,080,300
1878-'79	18,200,300	19,664,000	4,815,900	2,478,800	1,331,800	46,490,800
1879-'80	17,953,400	21,474,700	5,215,500	2,472,700	1,440,200	48,556,500
1880-'81	18,696,700	28,789,300	5,732,000	3,268,700	1,855,600	58,842,300
1881-'82	18,923,200	30,124,900	7,463,600	3,968,800	1,815,100	62,295,600
1882-'83	19,600,900	28,971,000	7,200,900	3,887,300	1,615,300	61,275,400
1883-'84	20,798,800	29,143,400	7,322,300	3,991,900	1,688,500	62,944,900
1884-'85	21,843,800	29,677,100	7,282,800	4,086,200	1,727,500	64,617,400
1885-'86	22,098,100	30,082,200	7,021,200	4,116,300	1,561,500	64,879,300
1886-'87	23,998,800	30,674,900	8,134,600	4.823,600	1,705,300	68,837.200
1887-'88	25,128,400	32,298,000	8,759,500	4,891,000	1,939,200	73,016,100
1888-'89	26,645,500	31,928,500	7,865,500	4,990,400	1,953,100	73,383,000
Average	20,057,900	25,099,500	6,542,600	3,365,200	1,595,000	56,660,200

Breweries within the brew-tax district (which does not include Bavaria, Würtemberg, Baden, and Alsace-Lorraine).

State.	City.	Country.	Total.	Grain used (100 kilograms).	Malt surrogates used (100 kilograms).	High fermented.	Under fermented.	Total.
						Hectoliters.	*Hectoliters.*	*Hectoliters.*
Prussia and Hohenzollern	3,427	3,833	7,260	4,136,506	38,091	5,782,364	14,367,908	20,150,272
Saxony	223	553	776	648,331	3,324	1,881,635	2,015,132	3,896,767
Hessen	157	108	265	216,451	1,118	1,389	913,044	914,433
Mecklenburg	111	299	410	62,036	946	128,129	256,443	384,572
Thuringia	217	858	1,075	412,174	461	307,614	4,650,873	1,958,487
Oldenburg	10	82	92	26,039	378	83,173	99,424	182,597
Brunswick	40	39	79	83,047	441	24,836	385,421	410,257
Anhalt	57	17	74	56.998	490	92,428	206,661	299,089
Luebeck	25	8	33	18,850	677	36,725	57,238	93,963
Bremen	18	....	18	19,629	1,670	12,083	92,391	104,474
Hamburg	26	3	29	53,437	1,937	96,290	214,474	310,764
Total	4,311	5,800	10,111	5,783,498	49,528	8,396,666	20,259,009	28,655,675
In the year 1887-'88	4,345	5,940	10,285	5,503,903	48,312	8,503,919	18,971,927	27,475,846
Lurenburg	13	11	24	22,407	....	1,364	91,892	93,256

State.	Brew-tax.			Additional entrance duty.*	Additional customs duty.	Total income from beer.
	Income.	Export rebate.	Remainder.			
	Marks.	*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*
Prussia and Hohenzollern	16,908,655	238,909	16,669,746	741.477	163,617	17,574,840
Saxony	2,620,257	67	2,620,190	1,010,237	456,736	4,087,163
Hessen	871,199	20,038	851,161	96,325	232	947,718
Mecklenburg	258,276	709	257,567	13,589	3,721	274,877
Thuringia	1,660,722	2,217	1,658,505	891,585	4,431	2,554,521
Oldenburg	116,608	441	116,167	2,999	31	119,197
Brunswick	337,539	4,623	332,916	570	41	333,527
Anhalt	235,530	....	235,530	68	27	235,625
Luebeck	79,723	4,290	75,433	8,319	1,317	85,069
Bremen	89,234	9,041	80,193	7,653	19,453	107,299
Hamburg	229,729	9,683	220,046	67,910	37,719	325,675
Total	23,407,472	290,018	23,117,454	2,840,732	687,325	26,645,511
In the year 1887-'88	22,455,842	446,061	22,008,781	2,500,609	619,003	25,128,393
Lurenburg	87,941	3,984	83,957	6,105	1,372	91,434

* On importations from Bavaria, etc.

W. H. EDWARDS,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Berlin, June 30, 1890.

BERLIN IN 1889.

REPORT BY CONSUL-GENERAL EDWARDS.

During the period covered by the following report (the fiscal year ended March 31, 1889) three emperors reigned in Berlin.

For the sufferers from the floods in the spring of 1888 the central relief committee, under the presidency of the mayor of Berlin, acknowledged the receipt, in total, of 3,465,763 marks, of which Berlin contributed 1,200,000 marks. Of this sum 3,222,663 marks were actually distributed.

The city limits were not extended during the year reported.

The imperial law of June 14, 1888, went into effect October 1, 1888. By this law all political communities which support free schools receive quarterly in advance from the State treasury for every teacher of the first class at the rate of 400 marks per annum, for other teachers at the rate of 200 marks, for female teachers at the rate of 150 marks, for every assistant teacher at the rate of 100 marks. From this source the city of Berlin for the half year from October 1, 1888, to March 31, 1889, received 286,950 marks. By the law of March 31, 1889, this State allowance was increased to 500 marks for first-class teachers and to 300 marks for other regular teachers, the law going into force April 1, 1889.

On the 6th of June, 1888, a law was passed for the improvement of the rivers Oder and Spree and 3,200,000 marks were appropriated for improving the river Spree within the city limits and as far as its junction with the Havel.

The round amount paid by street-car companies for use of the streets, avenues and squares was 892,000 marks.

While the population increased 56,500, the number of rented dwellings increased 15,908, the average value of the new dwellings being 868 marks. The average value of all dwellings was 652 marks, 10 marks higher than in the preceding year. The number of unoccupied dwellings was 8,516 with an average value of 558 marks.

According to the police registers during the year 1888 the Berlin hotels sheltered 418,473 visitors, an increase over the preceding year of 7.7 per cent. while the increase in population was 3.99 per cent. The municipal accounts at the end of March, 1889, showed a balance of 4,940,501 marks.

The excess in receipts over the estimates in the separate municipal industries were as follows:

	Marks.
Gas works	940,726
Water works	229,168
Cattle market	222,582
Canalization	192,885.5

The receipts from the tax office were 1,746,543 marks above the estimates.

The total municipal debt at the close of the fiscal year (March 31, 1889) was 185,256,137 marks (about $44,000,000). In the way of assets the city has 159,110,725 marks invested in the municipal industries, which leaves the actual surplus of debt only 26,145,411 marks (a little more than $6,000,000). Three new market-houses were opened during the year.

There were no important exhibitions within the fiscal year, though for the exhibition of devices for the prevention of accidents, which was open during the summer of 1889, 100,000 marks was contributed by the city, and gas and water supplied free. The meetings of the seventh international congress of Americanists were held in the city hall. The "Urania" company which has erected in the Exhibition Park what is known as a scientific theater consisting of an astronomical observatory, physical cabinet, etc., where science is taught in a practical and popular form, was promised for the year 1889-'90, 6,000 marks from the city treasury in return for which entrance was to be free for pupils of the city high schools, girls' schools, district and industrial schools.

The six municipal normal clocks without exception kept good time during the year reported. The clocks at the Potsdam Gate, the Monbijou place, and the Spittelmarkt each only once was more than a second wrong. This happened twice with the clock on the Kammergericht (court) building, and four times with the clock in the Hackesches Markt. The clock at the Oranienburg Gate stopped twice during the night, and during the time from May 1 to May 15 by a mistake was two seconds too fast. During the rest of the year it showed the right time to within a second. During the business year 1888 there were forty-two public and thirty-two secret plenary sittings of the city council, and one hundred and thirteen other sittings.

Capital and debt.—At the beginning of the fiscal year 1888-'89, there was still on hand from the proceeds of the 1886 3½ per cent. 37,354,000 marks loan, 11,388,680.72 marks in the city treasury. At the close of the year 2,137,445.66 marks were still in the treasury.

The expenditure is accounted for as follows:

	Marks.
For city industries, etc.	
Canalization	2,600,000.00
Extension of water works	774,300.00
Erection of market halls	1,426,454.88
Total	4,800,754.88
For other purposes.	
Building of high schools	2,229,664.29
Enlarging the idiot asylum at Dalldorf	95,455.29
building an asylum for roofless night wanderers	23,806.01
building a hospital and infirmary	816,374.29
new police buildings	1,330,742,58

For other purposes—Continued.	Marks.
building a hospital at Urban, (to this purpose the Beschort legacy of 603,175.83 marks was also devoted)	366,086.04
building a second insane asylum near Lichtenberg	366,210.62
improvements on the insane asylum at Dalldorf	8.15
building a home for epileptics	322,729.54
improvement of the "Damm-Mühle" property	10,857.58
erection of bridges	452,085.16
broadening the new Friedrich street and laying out the Kaiser Wilhelm street	402,062.84
Street inprovements in consequence of the building of the city (elevated) railway	34,397.79
Total	4,450,480.18
Total city industries	4,800,754.88
Grand total	9,251,235.06

The total city debt on March 30, 1889, was, as already stated, 185,256,137.30 marks, which may be itemized as follows:

	Marks.
3½ per cent. loan of 1828	1,579,050.00
4 per cent. loan of 1866	6,247,950.00
4 per cent. loan of 1875	16,559,400,00
4 per cent. loan of 1876	26,304,000.00
4 per cent. loan of 1878	31,218,200.00
4 per cent. loan of 1882	44,080,000.00
3½ per cent. loan of 1886	37,354,000.00
	163,342,600.00
Loan from imperial funds at 4½ per cent.	23,753,000.00
Due on property purchased for communal purposes	300,000.00
	187,395,600.00
Less the face value of the balance on hand of the loan of 1886, actual value 2,137,445.66 marks	2,139,462.70
Total liabilities of the city of Berlin	185,256,137.30

The assets were as follows:

	Marks.
Gas-works	10,360,790.00
Water-works	35,941,609.68
Canalization	72,362,101.58
Cattle market and slaughter-house	11,477,087.00
Market halls	16,762,524.39
	146,904,112.65
Profits, which at end of 1867 had been invested in the gas-works	9,309,000.00
Advanced from city treasury to pay gas-works' loan of 1869	2,897,613.00
Total assets of the city of Berlin	159,110,725.65
Net liabilities at end of fiscal year 1888-'89	26,145,411.65
Net liabilities at end of fiscal year 1887-'88	22,113,301.71
Increase in fiscal year 1888-'89	4,032,109.94

The expenses of the city administration were as follows:

	Marks.
Members of the magistracy	198,700.00
Technical assistance	7,623.00
Bureau and treasury clerks	1,351,816.90
Other clerks	600,195.85
Tax collectors	514,753.28
City sergeants, work-house overseers, messengers, and servants	345,725.71
	3,018,814.74
Remunerations, pensions, etc	1,644,647.90
Total of personal expenses	4,663,462.64
Other expenses	1,004,451.73
Total	5,667,914.37
Total of receipts	662,507.86
Excess of expenses	5,045,406.51

The financial condition of the city at the close of the year (March 31, 1889) was considered very satisfactory, the surplus for the year, as shown by the reports of the city treasury, being 4,940,501.14 marks.

	Marks.
Total receipts	68,086,503.19
Total outlays	63,183,825.13
Excess of receipts	4,902,678.06
Balance on hand from 1887–'88	3,797,481.06
Total	8,700,159.12
Amounts due March 31, 1889	3,759,657.98
Balance on hand, as shown above	4,940,501.14

Of the above receipts the following net amounts were derived from taxation:

	Marks.
House and rent tax	18,028,652.01
Dog-tax	258,606.97
Communal income-tax	14,655,327.96
Brewing-malt tax	509,672.87
Peddler-tax	48.50
Total	33,452,308.31

Sanitary matters.—As usual, during the year reported more deaths were due to consumption than to any other cause. The total number of deaths in the city of Berlin from this disease was 4,253, or 14.51 per cent. of the entire number. Twenty-four and twenty-seven hundredths per cent. of all the deaths were due to consumption and inflammation of the lungs, breast, throat, and wind-pipe, and 13.32 per cent. to inflammation of the stomach and bowels. From infectious diseases there were 1,018 deaths from diphtheria, 389 from whooping-cough, 270 from measles, 188 from abdominal typhus, 146 from scarlet fever, and 55 from scarlet diphtheria, 82 from quinsy, 72 from syphilis, 67 from

St. Anthony's fire, 67 from pus-poisoning, 22 from dysentery, chicken-pox 4. From this list the absence of small-pox is notable. This is beyond doubt due to the thorough and compulsory system of vaccination which obtains in Germany. The total number of registered deaths from accident or murder was 354; the number of discovered suicides was 405.

As usual, there were more deaths of small children during the hot months. The city death-rate during the year ended March 31, 1889, was as as follows: July 22.65, September 22.24, August 22.12, January 20.89, March 20.33, November 19.87, February 19.78, June 19.65, May 19.62, April 19.42, October 19.11, and December only 18.81 per thousand of the population.

Bath-houses.—The city owned eleven river bath-houses and swimming basins. During the season (June 1 to September 30) 523,616 baths were taken, of which number 268,260 were free; the city providing for those unable to pay. The receipts amounted to 17,121.70 marks; an average price per bath (255,356 paid baths) being little more than 1½ cents.

The number of male bathers was 365,012; of female bathers, 158,604. The expenses amounted to 26,463 marks.

Of the "people's baths," which received municipal aid, reports were rather unfavorable. The bath-house in the Oranienburger suburb, during the year was visited by 84,105 bathers, of whom 62,296 were male. The bath-house "Old and New Koelln" was visited by 91,967 bathers, of whom 67,536 were males.

Police.—With the exception of the police commission for improvement of streets (which is under the control of the lord mayor and whose entire expenses are paid from the city treasury), the entire police service is under the management of the royal police presidency. The city, however, pays all except the personal expenses (salaries, etc.) of the local police administration. The amount paid from the city treasury for police guardianship was 1,479,859.29 marks. There were stationed within the city limits 312 watchmen and 3,149 policemen on foot and 18 watchmen and 220 policemen mounted, a total of 3,699 men, 208 men more than in the preceding fiscal year.

Protection against diseases of animals.—During the year 1888 10,257.50 marks were paid out as indemnification for 21 horses (three-fourths of the assessed value) killed by police order on account of glanders. To cover this outlay owners of horses in the city (there were 55,164 horses) were assessed 40 pfennigs per horse.

On November 1, 1888, there were in the city 4,290 cattle, but none were killed during the year on account of lung diseases.

Mortgages.—At the close of the year 1888 the Berlin Mortgage Institute had made loans on 1,357 pieces of real estate, an increase of 6 over the number at the end of 1887. Altogether since the opening of the institute there have been issued on 1,357 pieces of real estate mortgages as follows: 12,296,400 marks at 3½ per cent., 20,562,300 marks at 4 per cent., 44,807,100 marks at 4½ per cent., and 9,491,100 marks at 5 per cent. At the end of 1888 mortgages were held to the extent of 55,101,600 marks, bearing interest as follows: 12,017,400 marks at 3½ per cent., 16,235,400 marks at 4 per cent., 23,139,900 marks at 4½ per cent., and 3,708,900 marks at 5 per cent. At the end of the year 1888 the reserve fund amounted to 4,071,681.43 marks.

Population.—According to official figures the population of the city of Berlin increased from 418,690 (inclusive of the garrison of 18,558 men) in 1850 to 493,394 (inclusive of the garrison of 18,027 men) in 1860, 774,503 (inclusive of the garrison of 16,285 men) in 1870, 1,123,749 (inclusive of the garrison of 20,293 men) in 1880, and 1,470,230 (inclusive of the garrison of 20,595 men) at the close of the year 1888.

Street cleaning.—The cost of removing the snow from the streets was as follows:

	Marks.		Marks.
1879	680,200	1884–'85	118,242
1880	82,541	1885–'86	292,086
1881	174,406	1886–'87	213,084
1882–'83	105,370	1887–'88	454,879
1883–'84	25,050	1888–'89	379,869

During the same period the wages for additional laborers was:

	Marks.		Marks.
1879	228,531	1884–'85	38,435
1880	51,386	1885–'86	97,790
1881	65,868	1886–'87	66,544
1882–'83	33,832	1887–'88	164,897
1883–'84	8,625	1888–'89	106,223

The average cost of removing the snow during the ten years above alluded to was 252,572 marks, and the average annual cost of wages for additional laborers was 86,213 marks. At the close of the fiscal year (March 31, 1889) the street area which required regular cleaning was, streets, 4,615,047 square meters; sidewalks, 3,129,646. Total, 7,744,693.

The area cleaned daily was 2,825,409 square meters.

Good paving can naturally be cleaned better and more easily than bad. Hence the increase of good pavements is desirable from an economic stand-point.

During the fiscal year the area of good pavement was increased 163,600 square meters, so that the total was brought up to 1,488,000 square meters.

The increase in wood paving was small, amounting to only 2,280 square meters, the total area of wood pavements being advanced to 75,928 square meters. Eighty-six thousand, three hundred and forty square meters of asphalt were finished during the year reported. So that on April 1, 1889, there were 567,905 square meters of asphalt pavement in Berlin.

Employed in this department were six over-inspectors and twenty-one inspectors. Their salaries were as follows:

Over-inspectors:	
2, at 2,700 marks	$636.60
2, at 2,500 marks	595.00
1, at 2,400 marks	571.20
1, at 2,160 marks	514.08
Inspectors:	
8, at 1,830 marks	435.54
8, at 1,680 marks	399.65
8, at 1,500 marks	357.00

The over-inspectors and inspectors in addition to the above received from 180 to 240 marks each for performing functions as officials of the commission for the improvement of streets. The inspectors also received their uniforms free. The number of workmen employed and the rate of wages paid per day were as follows:

	Cents.
84 master work-men at 3.50 marks	83
434 laborers at 3 marks	71
70 laborers at 2.50 marks	60
65 asphalt laborers at 1.50 marks	36
2 road laborers at 2 marks	48

Of the laborers there are two classes, one receiving 3 marks per day and one 2.50 marks. The latter consists of new employés who, after a service of one or one and a half years, are advanced to the higher class. The laborers receive working clothes free, in case of sickness receive half pay, and are also paid for Sundays and holidays.

Assistance was rendered to sick employés in one hundred and seventy cases to the total amount of 3,785 marks during the year.

The following annual pensions were also paid to old workmen according to the length of their service:

	Marks.
10 to 15 years	400
15 to 20 years	450
20 to 25 years	500
25 to 30 years	550
30 years and upwards	600

During the year reported there were 11 pensioners; 2 at 600, 4 at 550, 1 at 500, and 4 at 400 marks.

The amount expended during the year for tools and utensils was 55,969 marks.

In addition to a great number of small articles, the following articles were purchased during the year:

Piassava brooms	16,484	Wooden snow-pushers	56
Piassava rollers	421	Two-wheeled iron carts	6
Flat shovels	707	Rubber scrapers, new	235
Large iron shovels	400	Rubber scrapers, repaired	228
Broom-handles	1,350	Water-closet brushes	150
Shovel-handles	450	Sprinkling cans	35
Drag-handles	200	Mattocks	100
Hoe-handles	400	Cast-iron manure-boxes	30

The use of birch brooms has decreased year by year from 29,298 brooms in 1879 to 3,585 brooms in 1888–'89. The materials used were (for sprinkling bridges and asphalt streets): 6,604 cubic meters of sand, and for general purposes, 33,311 kilograms of disinfecting powder, 4,727 meters of hemp hose, and 59,038 kilograms of sprinkling salt. The heavy use of sand and salt was during the winter, while the hose and disinfecting powder were required during the summer. Forty-two sweeping-machines (2 for each district) were in use during the year. The supplying with horses and drivers, as well as the keeping of the machines, was given out to contractors at the rate of 6 marks for each work-day. Repairs on the machines are made by the contractors at their own expense. The average cleaning capacity per machine was about 6,400 square meters per hour. It is calculated that this machine labor costs one-sixth as much as the same work would cost if done by hand. According to a new contract which terminates March 31, 1894, in consideration of an annual payment by the city of 378,160 marks, the contractors are bound to remove the refuse and filth, which has first been gathered in piles, from the streets.

In like manner the price for carting away the snow has also increased. After April 1, 1888, from 2.25 to 2.50 marks was paid for each load of two cubic meters. In 1888–'89, 97,969 loads of refuse were removed from the streets, in addition to 175,256 loads of snow.

In general all streets were regularly sprinkled twice a day; the principal thoroughfares and squares three or four times. The sprinkling period was from April 1, to October 31. For this work the contractors received 220,206 marks, an average of 7 marks per day for each wagon. The sprinklers were used on 169 days, the rain on 45 days rendering their use unnecessary.

The number and size of the wagons was as follows: Holding 1,000 liters, 18; 1,250, 28; 1,500, 99; 2,000, 2. Total, 147 wagons.

The amount of water used for sprinkling the streets was 719,494 cubic meters.

Public water-closets.—There were in use during the year 124 public water-closets, with accommodations for 540 persons. Of these, 3 were for women, and 1 for boys and girls.

Cleaning of the street-car tracks.—For the cleaning and sprinkling of those parts of the streets occupied by street railways, the companies, by contract, are responsible. By agreement, however, the city has undertaken this responsibility, and in the fiscal year reported received for this service from the street-car companies the sum of 101,410 marks.

Total expenses and receipts.—In the fiscal year 1888–'89, the total expenses of the street-cleaning department were:

	Marks.
Wages	805,256.00
Uniforms	11,538.30
Tools, materials, etc	186,749.27

	Marks.
Carting away	760,362.93
Sprinkling	221,294.00
Depots for supplies	5,087.94
Public closets	5,331.04
Miscellaneous	10,602.40
Total	2,006,221.98
Total receipts	110,776.95

Market halls.—During the year 1888–'9 eight market halls belonging to the city were open.

These were valued as follows:

	Marks.
Central market hall	5,094,611.69
Market hall—	
No. II	3,098,794.05
No. III	1,515,984.37
No. IV	2,050,881.79
No. V	356,428.17
No. VI	1,190,255.56
No. VII	1,728,016.43
No. VIII	1,496,192.98
Directors' office	3,129.71
Total	16,534,294.75

Cattle market and slaughter-house.—The prices charged were as follows:

Standing room (not per day or night, but paid only once) for cattle, 1 mark each; swine, 30 pfennige; calves, 25; sheep, 7. Weighing cattle, 20 pfennige; swine and calves, 10; sheep, 2.

Slaughtering prices were: Cattle, 1.30 marks each; swine, 70 pfennige; calves, 40; sheep, 20.

Official inspection of meat: Cattle, 20 pfennige each; swine (inclusive of microscopic examination), 80 pfennige each; calves and sheep, 10 pfennige each.

Day wages of employés ranged from 2.50 to 3 marks, though most of the men were paid in proportion to the work done.

The receipts in 1888–'9 were:

	Marks.
Cattle market	2,401,559
Slaughter-house	692,552
Inspection of meat at slaughter-house	518,662
Inspection of meat in the city (imported meat)	210,544

Of the receipts from the cattle market 536,682.23 marks were transmitted to the city treasury as net surplus.

The surplus from the slaughter-house was placed in reserve for the abatement of the slaughter fees.

In like manner, in accordance with the Prussian law of March 18, 1868, and its amendment of March 9, 1881, the surplus from the inspection of meat was placed in reserve for the reduction of the inspection fees.

Of the expenses may be mentioned the following:

	Marks.
Interest, etc	640,058
Taxes	50,831
Salaries and wages	216,360
Disinfection, and pay to railroad employés	177,465
Water	64,747
Gas	81,768
Heating materials	23,136

The sale of forage amounted to 940,845 marks.

During the year there were entered at the central cattle market:

Cattle[*]	201,962
Swine	625,552
Calves	142,105
Sheep	746,296

In the municipal slaughter-houses were slaughtered:

Cattle	141,814
Swine	479,124
Calves	115,793
Sheep	338,798

According to the report of the meat inspectors, during the year there were brought into the city ready slaughtered:

Cattle	30,738
Calves	145,438
Swine	105,064
Sheep	74,237

The total value of the animals entered at the central cattle market was 121,693,184 marks, as follows:

	Marks.
Cattle	50,940,500
Swine	48,793,056
Calves	8,526,300
Sheep	13,433,328

This valuation is estimated at the rate of 250 marks for cattle, 78 marks for swine, 60 marks for calves, and 18 marks for sheep. The average meat weights of animals slaughtered at the central slaughter-house were:

	Kilograms.
Cattle	277
Swine	90
Calves	62
Sheep	19½

After throwing out 1,724 cattle, 120 calves, 193 sheep, and 4,884 swine, whose flesh was condemned by the municipal meat inspectors, and 571 cattle, 129 calves, 279 sheep, and 469 swine condemned by the veterinary police, the slaughter-house delivered 38,646,763 kilograms of beef, 42,647,090 kilograms of pork, 7,163,728 kilograms of veal, and 6,497,357 kilograms of mutton; altogether 94,954,938 kilograms of meat, 6 per cent. more than in the preceding year. Adding to this imported—

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[*] Bulls, 48,672; oxen, 81,501; cows, 71,789.

	Kilograms.
Beef	7,112,482
Pork	8,708,692
Veal	5,817,520
Mutton	1,409,572
Lungs, livers, hearts, kidneys, feet (5 per cent. of the meat slaughtered in Berlin)	4,749,745
Fresh meat in post packets, tons of salt meat, bacon, smoked meat, venison (8 per cent. of the above total)	9,438,488
Meat of about 6,000 horses	33,000
Total	132,124,437
Deducting from this the flesh of 66,000 sheep which was sent to Paris in refrigerator-cars, and about 400,000 kilograms of pork exported to Thuringia and Brunswick	1,687,000
The meat consumption of Berlin is shown to have been	130,437,437

or about 90 kilograms per head of population.

The mode of slaughter of cattle (with the exception of those slaughtered according to Jewish rite by cutting the throat without previous stunning) and of swine was the delivery of a stunning blow on the head with a hammer or ax before piercing the heart. Calves and sheep were bound and their throats were cut without previous stunning.

In order to teach to apprentices the necessary method and force of the blow and at the same time to avoid practice on living animals, a special apparatus exists in the slaughter-house where at fixed hours free lessons are given to apprentices by an experienced employé. In the same way the municipal meat inspectors impart instruction to butchers' apprentices, free of cost, in the science of detection of disease in meat. Of the swine condemned by the municipal inspectors and veterinary police, the cause in three hundred and forty-five cases was trichinosis.

Schools.—Of public schools, during the calendar year 1888, there were in Berlin 259 (including 24 gymnasiums), composing 3,690 classes. The number of scholars was: Male 102,978, female 89,783, total 192,761. The number of scholars over 14 years of age was 11,602 or 6.02 per cent. of the total number. There were also 2 Jewish schools with 22 classes and 932 scholars (603 male and 329 female). The percentage of scholars over 14 years of age was 6.01. The number of private schools was 85 with 628 classes and 18,512 scholars (4,599 male and 13,913 female). The number of scholars over 14 years of age was 2,799 or 15.12 per cent. of the total number.

The total number of schools in the city of Berlin was 346 with 4,340 classes and 212,205 scholars (108,180 boys and 104,035 girls). The number of scholars above 14 years of age was 14,457 or 6.81 per cent. of the entire number.

The average annual salaries paid in the district schools were as follows:

	Marks.
177 rectors	3,540.00
1,830 male teachers	2,235.00
920 female teachers	1,462.50
36 assistant teachers	1,200.00

In addition the rectors received dwellings free (estimated at 600 marks per year) and 90 marks' worth of fuel. For the 177 district schools 69 athletic halls were provided and two small rented halls.

City water-works.—The total amount of water supplied by the city water-works during the fiscal year was 31,620,750 cubic meters. From other sources than the city water-works 66,807 cubic meters of water were used per day. At the close of the fiscal year there were in use 661,246 meters (about 400 miles) of distributing pipes.

The average cost price was .108293 mark per cubic meter. The average price at which it was sold was .173983 mark per cubic meter.

The net receipts were about 5,501,493 marks and the net expenses 3,424,375.01 marks.

W. A. EDWARDS.
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Berlin, June 30, 1890.

AGRICULTURE IN CREFELD.

REPORT BY CONSUL BLAKE.

The consular district of Crefeld comprises some of the most fertile lands of Rhenish Prussia, including that portion of the Prussian district of Düsseldorf west of the river Rhine, and within the northern and southern boundaries of the same, a distance of about 60 miles, north and south. It is estimated that about 70 per cent. of the land is under cultivation. It can be truthfully stated that within the past few years the farmer has fully realized the benefits of the protective policy of the Government. The soil, which had been allowed to remain idle on account of the importation of the growing quantities of the great grain competing countries, east and west, has been carefully cultivated and restored to its former fertility. This protective policy has stimulated the farmer to a better care and cultivation of his farm, using all of the means and appliances so well-known in the cultivation of the soil. Rich fertilizing compounds, which can be readily obtained, together with barn manure, both dry and wet, are used with a liberal hand and good judgment. After having enriched his land, he gives especial attention to his plowing. The plow in use has two reversible mold boards of nearly the same size, the front one being somewhat smaller, with a rolling colter or knife in front to cut the ground. This mold-board cuts a furrow from 10 to 12 inches deep, and the other, just in the rear, cuts a furrow about 3 inches deeper, and turns up the subsoil, mixing it well with the first furrow, thereby leaving the soil well pulverized. The upper part of the mold-board resembles an inverted scoop. This plow has only one handle, the beam being supported in front by a "fore carriage," provided with two small wheels, the one running in the furrow being somewhat larger than the other. The deep and subsoil plowing is considered one of the secrets of a good and uniform crop; especially it is necessary to insure a good crop of sugar-beets. The farmer also gives careful attention to a judicious rotation of crops. But little change has been made in the kind or style of farming implements within the last twenty-five or thirty years. The fork, hoe, and scythe, harrow, and other farm utensils are of ancient make and style. It is especially noticeable that American farming implements are not in use. It can be easily understood that when 20 or 30 acres of grain are to be harvested, it requires much time and many laborers to harvest their grain, when it must be borne in mind that the grain is cut with an old fashioned sickle.

EVANS BLAKE,
Consul.

UNITED STATES CONSULATE,
Crefeld, June 16, 1890.

EGYPTIAN CROP REPORTS.

REPORT BY ACTING CONSUL-GENERAL GRANT.[*]

THE COTTON WORM.

The cotton worm has made its appearance in most of the provinces of Lower Egypt. It is reported from Ziftah, one of the principal towns in the cotton-growing district of Lower Egypt, that after two years of sickly existence the insect came out again in many places with renewed vigor. In several plantations, especially the more promising, the amount of eggs laid by the moth is so overwhelming, that all hands available have proved quite insufficient to destroy them.

It is thought that this is partly owing to the indolence or carelessness of some of the farmers, who do not take measures sufficiently energetic to check the increase of the insects. To make up for past losses, due to the ravages of the insect, many lands have been exhausted with the hope of obtaining larger crops, but with negative results.

The following letter on the extermination of the cotton worm was addressed to the Egyptian Gazette by Mason Bey, an American, who has resided for some years in Egypt.

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[*] Made chiefly from the reports of the Egyptian Gazette.

HOW TO EXTERMINATE THE COTTON WORM.

To the Editor of the Egyptian Gazette:

SIR: In your issue of yesterday you published a paragraph on the appearance of the cotton worm and the most effectual way to combat the evil.

The plucking of leaves on which the moth has deposited its eggs is an excellent thing, but I doubt its being as successful as a scheme for the destruction of the cotton moth practiced for many years in the great cotton belt of the United States and reported in the United States Bulletin of Agriculture.

The collection of eggs is necessary, but it must be repeated every year, and is an expensive operation. In districts where labor is scarce, as much as P. T. 3 per diem is, at present, being paid to each child for gathering the leaves. On the other hand, when once the apparatus necessary for the destruction of the moth is purchased the yearly expenditure is trifling.

The apparatus consists of a large tray fastened, on the top of a pole about 3 yards in the ground; in the center of the tray, slightly raised, is a lamp sufficiently large to give a bright light. The tray is filled with ordinary molasses. The result obtained by the domain with 15 trays has been as follows: On dark, still nights an average of 300 moths per tray, and on clear or windy nights the average has fallen to 100.

This gives an average of 200 moths per tray caught nightly during one month; by taking only a quarter of these to be female moths, we have the following figures for the 15 trays during the month: 50 multiplied by 30 multiplied by 15 equal to 22,500 female moths, and as each female moth lays 250 eggs, we have 22,500 multiplied by 250, equal to 5,625,000 eggs destroyed in a month.

If the Government would only take up the matter and try it on a large scale in affected districts, I feel confident that in a few years the cotton worm would be greatly diminished in Egypt.

A fellah, nazir of a large abadeeyeh near Cairo, the property of a very distinguished agriculturist, ex-president of the council of ministers, showed me a lot of cotton leaves with the eggs on them; he showed me the little yellow spot, like a grain of sand, and informed me that in a few days the larvæ would be alive and then the plant covered with worms. The fellahin won't believe this, but for three years I have watched these spots.

There was a fellah who had learned that the cotton worm was only an effect, and that it can be kept down. Mitwalli will finally learn that if he can capture the moth before it lays its eggs he will have found the way to exterminate this formidable pest.

I am, etc.,

MASON.

CAIRO, *June* 24, 1890.

COTTON CULTIVATION.

The favorable progress of the Nile flood has nearly removed any anxiety that may have been felt as to the sufficiency of the water-supply in the early part of next month, and the Fayoom province continues to remain free of the cotton worm. The cotton plants are in good condition, and the first cotton of the new crop may be expected to arrive at Alexandria from the Fayoom in the first week of next month.

The following table gives a statement of the different kinds of cotton plantations in the year 1890, showing the area under cotton cultivation in the different provinces of Lower and Upper Egypt. It shows an increase in the area under cotton cultivation this year over that of last year of about 2,650 acres.

Different kinds of cotton plantations and area (in acres) in 1890.

Development by provinces.	Domains.						Daira Sanieh.					
	Ashmooni.	Mit-Afifi.	Abiad.	Bamieh.	Gallini and different.	Total.	Ashmooni.	Mit-Afifi.	Abiad.	Bamieh.	Gallini and different.	Total.
LOWER EGYPT.												
Béhéra	1,627	180	....	....	....	1,807	......	......	....	....	....	......
Charkieh	759	425	....	....	....	1,184	66	....	....	....	....	66
Dakahlieh	3,034	510	....	427	....	3,971	1,732	80	300	150	....	2,262
Gharbieh	28,963	11,912	....	40	47	40,962	2,790	190	....	530	....	3,519
Kalioubieh	......	......	....	....	....	......	......	....	....	....	....	......
Menoufieh	......	......	....	....	....	......	......	....	....	....	....	......
Total	34,383	13,027	....	467	47	47,924	4,597	270	300	680	....	5,847

Development by provinces.	Other lands.						Total area under cotton cultivation in 1890.					
	Ashmooni.	Mit-Afifi.	Abiad.	Bamieh.	Gallini and different.	Total.	Ashmooni.	Mit-Afifi.	Abiad.	Bamieh.	Gallini and different.	Total.
LOWER EGYPT.												
Béhéra	49,397	64,044	100	3,280	100	116,921	51,024	64,224	100	3,280	100	118,728
Charkieh	7,226	116,297	2,405	110	.....	126,038	8,051	116,722	2,405	110	.....	127,288
Dakahlieh	63,310	24,133	24,179	35,310	70	147,002	68,076	24,723	24,479	35,887	70	153,235
Gharbieh	55,533	105,120	11,804	31,953	300	204,710	87,295	117,222	11,804	32,523	347	249,191
Kalioubieh	862	38,985	889	1,233	.....	41,969	862	38,985	889	1,233	.....	41,969
Menoufieh	7,978	67,769	1,175	2,980	110	80,012	7,978	67,769	1,175	2,980	110	80,012
Total	184,306	446,348	40,552	74,866	580	716,652	223,286	429,645	40,852	76,013	627	770,423

Development by provinces.	Domains.						Daira Sanieh.					
	Ashmooni.	Mit-Afifi.	Abiad.	Bamieh.	Gallini and different.	Total.	Ashmooni.	Mit-Afifi.	Abiad.	Bamieh.	Gallini and different.	Total.
UPPER EGYPT.												
Assiout	......	......	....	....	....	......	......	....	....	....	....	......
Beni-Souef	246	......	....	....	....	246	155	....	....	....	....	155
Fayoum	6,506	......	....	....	....	6,506	7,455	....	....	....	....	7,455
Ghizeh	......	......	....	....	....	......	......	....	....	....	....	......
Minia	......	......	....	....	....	......	3,743	....	....	6	....	3,749
Gherga	......	......	....	....	....	......	......	....	....	....	....	......
Keneh	......	......	....	....	....	......	......	....	....	....	....	......
Esneh	......	......	....	....	....	......	......	....	....	....	....	......
Total	6,752	......	....	....	....	6,752	11,358	....	....	6	....	11,359
General total	41,135	13,027	....	467	47	54,676	15,950	270	300	686	....	17,206

Different kinds of cotton plantations and area (in acres) in 1890—Continued.

Development by provinces.	Other lands.						Total area under cotton cultivation in 1890.					
	Ashmooni.	Mit-Affi.	Abiad.	Bamieh.	Gallini and different.	Total.	Ashmooni.	Mit-Affi.	Abiad.	Bamieh.	Gallini and different.	Total.
UPPER EGYPT.												
Assiout	809	254	......	......	.....	1,063	809	254	......	......	.....	1,063
Beni-Souef	13,358	......	......	......	.....	13,358	13,759	......	......	......	.....	13,759
Fayoum	43,560	5	1,850	4	742	46,161	57,521	5	1,850	4	742	60,122
Ghizeh	1,202	669	90	......	.....	1,961	1,202	669	90	......	.....	1,961
Minia	3,376	234	117	358	81	4,166	7,119	234	117	364	81	7,915
Gherga	149	......	65	......	.....	214	149	......	65	......	....	214
Keneh	......	......	......	......	.....	......	......	......	......	......	.....	......
Esneh	1	......	21	......	.....	22	1	......	21	......	.....	22
Total	62,455	1,162	2,143	362	823	66,945	80,560	1,162	2,143	368	828	85,056
General total	246,761	417,510	42,695	75,228	1,403	783,597	303,846	430,807	42,995	76,381	1,450	855,479

NOTE.—To be added: Thirty-five acres Ashmooni at Rossetta. Cotton areas in the mudirieh of Keneh, of which we have no reports as yet. Cotton plantations in a few villages in the mudirieh of Béhéra.

COTTON CROP OF 1890.

The following article cut from the Egyptian Gazette of July 8 gives an idea of the general condition of the cotton crop:

Reports received in June from the cotton-growing districts continue to be of a favorable character. Satisfaction is expressed regarding the state of the plant and its development, which would be still more advanced had it not been for the relatively cool temperature, which continues to prevail to this date.

The management of the irrigation department and the manner in which water is distributed meets with general approval, except as regards the Fayoum. Watering has been effected almost everywhere with considerable ease and regularity, with the help of pumps and other appliances.

Respecting the Fayoum, it is stated that the plantations have partly suffered from want of water, which has been felt there much more than in preceding years. This unsatisfactory state is attributed to the increase of cultivation in Upper Egypt, the lands situated along the higher part of the canal, which supplies the Fayoum, being the first to draw the water, and owing to the above fact, absorbing this year a much greater share than formerly. Fortunately the Fayoum district contributes the smallest proportion of the crop, and possibly for this reason it has been sacrificed to a certain extent to insure a sufficient quantity of water for Lower Egypt.

Still, the first signs of the rise of the Nile waters have appeared at Wady-Halfa at a comparatively early date, and as, since, a daily rise of a few centimeters has been advised from that station, and the Cairo nilometer has likewise marked a small increase, it is believed the rise will reach the level necessary to assure the watering of the lands at an early period.

This circumstance greatly diminishes the uneasiness felt on the score of an insufficiency of water at the end of July and especially during the beginning of August.

As customary, worms made their appearance in June almost throughout Lower Egypt. Happily they have so far occasioned no appreciable injury to the plants, but all depends on the temperature in July, as to what damage may result from their presence. The insect continues to be unknown in the Fayoum and in Upper Egypt.

(The association, having itself no adequate means of verifying the extent of land planted with cotton or the proportions of the different qualities sown, publishes the figures for each province separately, which the Government of his Highness had the goodness to communicate to it. We were also favored with a copy of this return, which we published in yesterday's issue.)

PROHIBITION OF TOBACCO CULTURE.

By the Khedive's decree dated June 25, 1890, the cultivation of tobacco and tombac is prohibited throughout the whole of Egypt. The owners of lands which are hereafter found to be under tobacco cultivation will be subjected to a fine at the rate of 200 Egyptian pounds, or about $1,000, per acre.

This will form the subject of a separate report.

LOUIS B. GRANT,
Acting Consul-General.

UNITED STATES CONSULATE-GENERAL,
Cairo, July 9, 1890.

TRADE AND COMMERCE OF SIERRA LEONE IN 1889.

REPORT BY VICE-CONSUL MAY.

The past year has been one of much concern in a political and commercial aspect, the outcome of a disturbance in the river districts, the continuance of which unsettled the condition of trade and caused an anxiety to merchants and traders alike.

The governor of the colony, with a determination to finally settle these impending troubles and secure free scope to the traders, proceeded in the early part of the year with an armed expedition composed of a contingent of native constabulary to the disturbed countries, pursued the marauding chief through several towns and hamlets, and eventually captured him after a hard and severe struggle, and brought him to Freetown, the headquarters, as a political prisoner. The trading districts soon afterwards became peaceful and resulted in a gradual but steady flow of produce, much to the satisfaction of the merchants.

The general trade during the year, although not as good as in some previous years, was more encouraging than that of 1888, and there are hopeful signs for the year 1890.

The statistical tables, which I beg herewith to inclose, will show the volume of trade done during the year in the colony, as well as give detailed items of American trade direct with the United States.

Agriculture.—There has been little progress made in this branch of industry during the year, but the necessity is being pressingly felt that something will have to be done, and that quickly, to revive this important branch, upon which so many others depend.

Ginger, which is the most important staple article exported, is at its lowest ebb. The encouragement to the agricultural producers is small indeed. The prices offered vary from 3 farthings to 1 penny per pound, and this price certainly does not meet the labor expended in its preparation for the market. In fact, it is not on purpose that the industry should be kept up that anything is offered at all. The farmers are therefore much discouraged, all hopes for a better price being frustrated.

Ground-nuts, another staple, is in equally bad condition. It has lately been reported, however, that in view of the prospect of the increase of price this commodity will be extensively planted during the coming season.

It is obvious that agriculture in this country will never improve unless undertaken by a large and well-established company, or directly by the Government, who would not only study the soil, but will keep themselves in communication with the civilized world, so as to be informed of the actual necessaries required abroad and endeavor to cultivate them. The establishment of a model farm is greatly needed. The farms are still being worked by individuals, the majority of whom are hopelessly ignorant and depend wholely on the yield of whatever soil they may have worked with their little hoe. It will be of immense advantage if an agricultural company could be started by American capitalists with a view to develop the commercial industries of this part of Africa. The extensive natural botanical wealth peculiar to the country and unknown to the unscientific will commensurate the enterprise.

Education.—The education of the country is being pursued on the same old lines. There are, however, instances of solid and useful work. The whole system of the elementary schools of this country requires a thorough reorganization to bring them within the scope of modern improvement. The youths urgently and constantly need to be impressed with the necessity of exercising their thinking faculty, especially as their powers of memory seem too highly cultivated to the injury of the former. The duties of each teacher are at present too great, and render his labors ineffective. An increase of qualified teachers to the schools will be an improvement.

Through the impetus given by Sir James Hay, the governor, the subject of technical education was much discussed during the year. His excellency is desirous that the youths should be trained to some useful industry during their school-days. The subject which has received the consideration of the colonial secretary of state is now before a committee discussing schemes to lay before the board of education.

It is clear, however, that the requirements for a technical school are more than the people can at present afford, and unless the maintenance of such a school is largely met from other sources the difficulty to sustain it will be great. The people will give support, it appears, to a school or institution that may be established having in view the increase of the protective power of the colony, the introduction of new industries, or turning to valuable account the raw materials of the country.

Population and sanitation.—There is at present no available means of gauging the population of the country since 1881, the last census year, nor to accurately forecast it prior to the next census year 1891, but taking everything into consideration, it seems that the population has slightly increased. A large number of the aborigines of the interior reside in town and form part of the labor population.

In the sanitary department no actual effort has been made to improve the health of the country beyond the cutting down of high weeds in empty yards, and an attempt to replace cess-pits by the dry-earth system, which has not worked successfully. The permanent sanitary inspector has been sent home and was retired from the service of the government in consequence of his being unfitted by ill health to live in the country. The colonial surgeon was appointed ex-officio sanitary in spector, but he being away during half of the year on his vacation leave, the duties of the office were performed by the acting colonial surgeon.

The past rainy season has been most unhealthy, and not less than sixteen Europeans out of a moving population of about one hundred succumbed to the rigors of the climate or through the effect of it on the system. During this season many Europeans had to return home for a change, till the number actually on the spot was reduced to not more than thirty. The rain-fall during the season is about the same as the previous year, which is less than the quantity which fell in 1887.

His excellency Governor Hay was compelled to leave for England during the year in consequence of failure in health, and the government was administered by the officer commanding the troops, Lieutenant-Colonel Patchett, who had himself to proceed to Europe in less than three months from the date of his administration on account of his health. He was relieved in the government by Major Foster, who ruled the affairs of state for nearly three months, when he too had to leave for England on the arrival of Lieutenant-Colonel Maltby, who took charge of the government till the return of Governor Hay.

Garrison and fortifications.—The Imperial Government department, as distinguished from the colonial government, are still active in their efforts to fortify this city. The preliminary work being completed during the year, the armaments were brought to the coast by a specially-chartered vessel. It consisted of eight guns, four weighing 18½ tons each and the other four 6½ tons. Two of the 18½ tons were placed on the Falcolnbridge battery and the rest at the various forts at King Tom's. After the guns were mounted due notice to the public was given before they were tested. The fears and commotions among the ignorant population in this small community on the occasion were very great, and many expressed the fear that on the firing of such large guns many of the buildings in the town would fall from its effect. Happily the guns were tested without the catastrophe which had been predicted.

The works on the new barracks, which were commenced since last year, were continued during the year, and when the barracks are finished the troops on the coast will be concentrated here for defensive purposes.

During the year a corps each of the royal artillery and royal engineers, white officers and men, were stationed here to work the guns. Some native Housa soldiers were enlisted from the Housa country and brought as recruits for the artillery corps.

Harbor, wharf, etc.—Compulsory pilotage was abolished by an order in council, dated September 18, 1889, and vessels can now enter and depart without taking a pilot unless they choose to do so.

The United States man-of war *Pensacola*, Captain Yates, arrived in the harbor about the end of the year, on her way to St. Paul de Loanda to observe the total eclipse of the sun. The captain, the scientific professors, and other members of the Eclipse expedition came on shore and visited several places of interest. The captain, in company with the consul, called on the authorities of the colony who also returned the all. After taking coal, the *Pensacola* left for her destination.

The duties of the customs remain as last year.

Light house.—There has been no change in this department. Light dues remain the same.

Telegraph.—The cable from Sierra Leone was extended during the year as far as the Cape of Good Hope station, and the telegraph office which was formerly closed at 6 o'clock p. m., is now open till 10 o'clock p. m., for the receiving and dispatching of messages. The rate per word to the United States is $1.84.

AMERICAN. TRADE.

The general depressed condition of trade during the year is being slowly but surely removed and the prospect for the new year is encouraging, and it is fully believed that at the end of 1890 the returns will, in every respect, prove a satisfactory one.

American business has again reverted to the old houses which had been doing it years ago, the new-established firm referred to in the former part of this report, which had reduced the profits hitherto realized by the other firms, having closed.

The export to the States during the year is the lowest on record for the past ten years, and this has been brought about principally by the low prices offered for staple produce in the European market. The producers have nothing to stimulate them, and many of them have turned their attention to the cultivation of the cassada and other such articles for home consumption.

Several heads of firms had to visit Europe and America during the year to consult with their principals on the condition of the trade here. That a large number of persons are engaged in unprofitable business is unfortunately too true, and if these are removed from the scene a far healthier business will be the result.

The imports from the States during 1889 exceed those of 1888, and there seems still to be a growing demand for the wares of America. The whole colony is mainly dependent on the United States for pitch-pine lumber, white-pine boards, etc., and when, as is sometimes the case, the supply happens to run short or is exhausted, works of importance are generally stopped till vessels arrive.

It is to be hoped that as the prices of produce improve in the European market the export will continue to swell, and that at the end of another year the encouraging trade prospect will be realized.

CORNELIUS MAY,
Vice-Consul.

UNITED STATES CONSULATE,
Sierra Leone, March 26, 1890.

Imports from and exports to the United States, 1880 *to* 1889, *as shown by invoices on file and as reported by importers.*

Year.	Imports from the United States.	Exports to the United States.	Year.	Imports from the United States.	Exports to the United States.
1880	$220,076	$182,257	1885	$239,207	$259,620
1881	187,003	168,264	1886	190,381	202,614
1882	236,283	235,469	1887	171,837	150,545
1883	175,141	190,783	1888	148,745	76,854
1884	206,031	282,240	1889	156,501	78,021

African produce exported to the United States direct from Sierra Leone for year ended December 31, 1889, *as shown by invoices on file.*

Articles.		Quantity.	Value.
Animals	number	105	$161.20
Bags, empty	do	1,474	265.32
Camwood	pounds	967	21.75
Charges			1,771.61
Coffee	bags	1	19.88
Ginger	pounds	861,144	17,621.49
Hides	do	543,842	51,725.64
Horns	number	5,024	38.02
Ivory	pounds	3	1.08
Kernels	bushels	1,197$\frac{17}{88}$	1,077.55
Mats	number	696	65.64
Palm oil	gallons	932	233.12½
Rubber	pounds	95	19.00
Wood	bundles	1	(*)
Total			73,021.30½

* Sample.

RUSSIAN VS. AMERICAN PETROLEUM IN ITALY.

REPORT BY CONSUL FLETCHER, OF GENOA.

The energy displayed in Italy by companies interested in Russian petroleum, notably representatives of Nobel Brothers, at St. Petersburg and Baku, for the transportation and sale of the Caucasian oil, has been for some time past, and is to-day, of such a nature that I feel warranted in presenting to the Department the following report on the subject:

By chance, a short time ago I saw a pamphlet of eight pages headed "Russian Petroleum," issued by Nobel Brothers. It was being translated from English into the Italian language. An effort to secure a copy resulted in a failure. Learning, however, that Messrs. Bessler, Waechter & Co., 123 Bishopsgate street within, London, E. C., were general agents for the company named throughout the United Kingdom, a letter was sent to this firm requesting a copy of the pamphlet. The request was granted. The contents of the document may not be new to the Department,* still as this report could not be considered complete without liberal quotations therefrom, I quote the following:

On the first of January, 1889, Nobel Brothers estimated the capital in their business as follows:

	Rubles.
Fully paid up shares	15,000,000
Debentures	3,027,057
Sinking fund	6,884,601
Reserve fund	526,000
Insurance fund	449,016

The company's means of transport comprise: 1 ocean-going steamer, *Ludwig Nobel*, 25 tank steamers on the Caspian Sea and Volga, 1,554 tank railway cars, the pipeline over the Souram Mountains, etc.

Comparisons made between Nobel's (Russian) petroleum and American oil.

[From the circular "Russian Petroleum."]

ADVANTAGES OF NOBEL'S PETROLEUM.

Brand—This is the only Russian oil sold in this country under the manufacturers' brand; it is never mixed with other makes, and is therefore always uniform in all points of quality.

Safety.—Nobel's oil is very much safer than the American petroleum in general use in England, the latter having only a flashing point of about 73°, whilst Caucasian oil has passed the Russian Government test of 83° Fahrenheit, and Nobel's oil is now found to flash at about 88° Fahrenheit, as per Mr. Boverton Redwood's certificates.

Color.—At time of shipment, Nobel's oil is superfine white, or better, the bulk of American oil being only standard white.

Burning qualities.—The flame produced by Nobel's oil is much more brilliant and whiter than that produced by American oil. It is an admitted fact that the flame of

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* The pamphlet is published in its entirety immediately following Consul Fletcher's report.

American oil gets much lower after the lamp has been burning for some time. This is owing to its low capillary power. Nobel's oil burns well with any fairly good wick, and ascends the same equally well from beginning to end, until the last drop of oil is exhausted. (Where consumers complain that Russian oil does not burn well, this is either owing to an inferior make of oil, or because the burners used are not of proper construction, or are not kept in a state of perfect cleanliness.)

Odor.—The odor of Nobel's oil is very sweet, and has none of the pungent smell so often complained of in other oils.

Acidity.—Nobel's petroleum is perfectly free from chemicals; the sulphuric acid and soda used in refining having been carefully removed by their own patent process.

From the above it will be seen, if the company's statements can be credited, that "Nobel's oil" is much superior in every respect to that produced in the United States.

To disabuse the minds of those who have the idea that the Russian petroleum supply is falling off, the following comparisons are made, the statistics being taken from "The Journal of the Minister of Finance at St. Petersburg."

[In poods of 36 pounds English weight.]

	1882.	1883.	1884.	1885.	1886.	1887.	1888.
Baku	138, 380	165, 410	246, 530	318, 510	328, 890	415, 000	503, 120
American	740, 720	570, 020	609, 150	512, 280	686, 560	531, 600	420, 300

thus showing a steady increase in the Russian, and a large falling off in the American supply.

The pamphlet next quotes the total production of crude petroleum near Baku, as follows:

	Barrels.
1880	2,500,000
1881	3,000,000
1882	6,000,000
1883	7,000,000
1884	8,000,000
1885	11,500,000
1886	12,300,000
1887	13,400,000
1888	16,500,000

The total production of refined in Baku in 1888 is given in this wise:

	Barrels.
Messrs. Nobel Brothers	1,561,372
Caspian Company	435,737
Tagieff Company	335,206
Adamoff	279,544
Zatouroff	267,100
Shibaieff	238,569
Arafeloff	183,473
Societé de Naphte (Paris Company	182,450
All others (140)	1,651,524
Total	5,134,975

NOTE.—The above barrel figures are approximate only, taking the barrel at 360 pounds net.

In same circular or pamphlet the "arrivals of petroleum in Batoum," for the ten months ending October 31, 1889, were as follows:

[Old style in tank cars of 10 tons each.]

January	4,509
February	4,107
March	4,893
April	5,603
May	3,98
June	3,974
July	5,829
August	6,613
September	6,935
October	6,484

The pamphlet concludes with a scientific article from the pen of Prof. D. Mendeléeff, of St. Petersburg, which I inclose herewith. If the subject-matter therein is not already known to owners of petroleum fields in the United States, its publication and perusal would no doubt interest such men.

The importations of petroleum into Genoa during the last year and six months, as well as stock on hand each month, will be found in the following tables:

Importation and stock on hand of petroleum at the port of Genoa.

YEAR ENDING DECEMBER 31, 1889.

Months.	American.				Russian.					
	Barrels.		Cases.		Barrels.		Cases.		100 kilos in tanks.	
	Stock first day of month.	Import during month.	Stock first day of month.	Import during month.	Stock first day of month.	Import during month.	Stock first day of month.	Import during month.	Stock first day of month.	Import during month.
January	4,092	....	42,272	92,954	....	....	12,426	....	....	....
February	3,166	....	45,941	47,350	....	2,415	7,551	....	....	....
March	1,765	....	23,406	73,300	2,216	....	4,536	....	....	....
April	1,220	....	25,235	55,618	2,050	....	2,830	....	....	....
May	830	....	51,000	88,593	1,890	....	1,455	....	....	....
June	579	....	101,269	....	1,600	....	....	....	....	14,800
July	440	....	64,484	104,595	1,500	....	....	....	14,800	....
August	10	....	137,962	82,103	1,400	....	....	....	13,680	....
September	....	5,120	148,743	19,550	1,305	....	....	....	12,000	....
October	4,860	....	103,440	124,049	800	....	....	....	8,000	....
November	4,102	....	183,850	151,090	600	....	....	....	7,000	....
December	2,975	....	172,872	78,909	400	....	....	....	3,000	16,000
Total	....	5,120	....	918,111	....	2,415	....	....	....	30,800
End of year	2,315	....	188,678	....	100	....	....	....	19,000	....
January	2,315	1,598	138,678	123,259	....	....	....	....	19,000	....
February	3,102	....	183,083	....	....	....	....	....	17,000	....
March	2,415	....	118,679	2,200	....	....	....	....	11,135	30,608
April	1,660	....	74,418	2,000	....	....	....	....	41,657	....
May	1,396	....	53,163	31,246	....	....	....	....	39,620	9,000
June	1,237	....	60,918	....	....	....	....	....	45,500	....
Total	....	1,598	....	158,705	....	....	....	....	....	39,608

PETROLEUM TANKS IN ITALY.

Venice was the first city in Italy to construct petroleum tanks. This work was accomplished, in 1888, by the firm Walter & Co. (Mr. Widekind, of Palermo, is a member of the firm.)

In the same year, Mr. G. B. Profumo, of Genoa, bought an old vessel and reduced it to a petroleum tank, naming it the "*Guerriera*"; it has a capacity of about 1,500 tons.

Next came Savona, with four iron tanks—two large and two small ones, total capacity 10,000 tons. These also are owned by Walter & Co., of Venice.

Later on the firm of Librach, Cantor & Florio (now Librach & Cantor) constructed iron tanks at Leghorn. This company manufactures its own wooden cases and cans, I learn. It is protected by the Nobel Company, and handles only Caucasian product.

Finally, last year, the municipality of Genoa entered into partnership with this firm, Cesaroni & Co., and constructed iron tanks of the capacity of about 560,000 tons; estimated cost, 1,800,000 francs. These tanks are rented to Messrs. Librach & Cantor for the sum of 100,000 francs per annum. The last named firm has the control of Nobel's oil for all Italy.*

It is the intention of the municipality of Genoa, however, at no distant day, to construct eight more tanks, one of large size and seven small ones, for the use of whomsoever chooses to rent them. The eight will have a total capacity of about 700,000 tons.

In Naples also it is proposed to construct several iron tanks for petroleum. Men of high business standing are interested in the enterprise; among them are such firms as Jeser, Merricoffre, Salvatore, Desimone, and others.

REPORT OF A PETROLEUM FIELD IN ITALY.

It is said that a large petroleum field has been discovered at a point between Mantua and Venice, on the property belonging to a Mr. Pretto, from which an abundant quantity of petroleum has been produced. It is further asserted that Messrs. Burton Buckly & Co., of Genoa, large dealers in American oil, have invested extensively in this field, and propose to erect a refinery thereon at no distant day. Inquiry has failed to draw out further information on this especial subject.

NOTES.

It is estimated that Genoa and Savona—a town about 20 miles distant from this city, and in this province—consume about 400 tons of oil per month. (Population of both places about 210,000.).

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* Messrs. Librach & Cantor will soon have their own shops for the manufacture of wooden cases and tin cans.

Genoa is the headquarters for the sale of petroleum for all upper Italy, and a portion of Switzerland, Austria, and Germany.

Ruling prices this day (July 10): American oil, 13 francs per 100 kilos in bond. Russian oil, 11 francs per 100 kilos in bond.

Entry duty 47 francs for every 100 kilos, gross weight.

JAMES FLETCHER,
Consul.

UNITED STATES CONSULATE,
Genoa, July 10, 1890.

CAUCASUS PETROLEUM.

[Inclosure in Consul Fletcher's report.]

The following report of the eminent Russian geologist and authority on oil fields, Professor Mendeléeff, will be read with interest.

[Reprinted from the October number of the Journal of the Society of Chemical Industry, by the kind permission of the publishers.]

THE PRESENT POSITION AND PROSPECTS OF THE CAUCASIAN PETROLEUM INDUSTRY.

By Prof. D. MENDELÉEFF.

The following communication has been addressed from St. Petersburg to Ludwig Mond, esq., as past president of the Society of Chemical Industry, by Professor Mendeléeff:

"Having observed that the Berlin correspondent of the Standard of July 25, 1889, as well as the Morning Post of August 7, have spread abroad in England a rumor to the effect that the natural supply of crude oil in Baku is coming to an end, and that consequently a lapse in the production of Russian naphtha was to be expected, I conceive that it will be of great importance that the correct state of affairs should be known as regards the present and future of the naphtha industry of the Caucasus. To this end it will be necessary in the first place to mention that even four years ago, and in Baku itself, these rumors as to exhaustion of supply were freely set up and circulated.

"These rumors then strangely resolved themselves into a variety of proposals to the government with regard to means, which might in one or other way be adopted to prevent the expected misfortune. Messrs. Nobel and Ragosin proposed then that a tax should be imposed on the crude oil, and a demand was made for powers to expend an enormous sum in experimental and exploratory borings in the outskirts of Baku for the purpose apparently of finding some source which might compensate for that now supposed to be fast approaching exhaustion. In order to obtain light as to the actual state of the naphtha industry at Baku, the government which is deeply concerned in its successful development, firstly, ordered that the practical geological investigations in that region should be vigorously pushed on; and, secondly, sent me in the summer of 1886 to collect authentic intelligence.

"One of the results attained in 1887 by the exploration under the department of mines (Engineer Torokin, the reports of Professor Meller, etc.) was that there had never been the least reason to suspect the exhaustion of the naphtha springs in Baku. In a special report (1866) to the minister of domains, Michael Nikolajewitsch Ostrowsky (The Baku Naphtha Industry in 1866), I stated that the rumors in question were due partly to entire ignorance as to the symptoms of exhaustion of the naphtha (these symptoms have been well studied in Pennsylvania), and also doubtless partly to the intrigues of certain parties, who supposed it to be to their interest to propagate such statements.

"The study made in 1886 of the Baku industry, familiar to me since 1863, has proved, (1) That not one single trustworthy symptom of exhaustion of the Baku naphtha region has presented itself. (2) That not having the means to store large supplies of naphtha which suddenly appear, a large quantity of the oil is lost (flowing into the lakes and sea). This is specially the case when oil springs burst forth, and leave no time for preparations for collection and storage.

"The cessation of the profitable yield of some of the wells has been proved to be owing to the obstruction of access to the same by the naphtha, for the new borings made close beside them very often yielded naphtha in abundance. But the upper layers, especially near Balakhani, which have been worked for a long period, proved to be almost exhausted. At the same time, however, in the direction of the village of Romany, exploration was commenced at a later period, and now promises to yield enormous quantities of crude oil, the layers here being situated deeper (not, of course, because the exploitation was begun later). The region of Beybat (where the wells of Messrs. Tagieff, Djajely, and others are to be found) yields naphtha in abundance, and is situated close to the town of Baku. It is, so to say, cut off from the Balakhani-Sabondchi naphtha region, and suggests the belief that besides the principal naphtha fields of the Baku regions, there are many other outlying and isolated naphtha regions like the region of Beybat. The precipitate conclusion as to exhaustion has more frequently been based upon the results of the wells lying near the village.

"Balakhani figures are put down *ad libitum*, quite forgetful of the existence of the Beybat region. In order, however, to show how unfounded is the judgment as to the exhaustion even of the region of Balakhani, I give here the figures taken from the reports of Messrs. Benkendarf and Mauramtzeff (Group XVII.) on the Balakhani region. These I verified in 1886, and I may say that the entries are made more correctly than on the other spots. There were in 1866 in all five wells, and these remain until now (1886). At the beginning the wells were worked slowly, and very often became obstructed.

"The yield was in—

	Poods.*		Poods.*
1876	727,000	1881	2,286,000
1877	1,250,000	1882	1,404,000
1878	1,209,000	1883	2,455,000
1879	1,066,000	1884	6,498,000
1880	1,150,000	1885	6,250,000

"The very pumping of the naphtha from the existing wells is not regularly conducted, but increases during the summer months, when the demands are greater, and at times ceases altogether during the winter. The third result of my study in 1886 was (3), that the wells which yield daily less than 200 poods of naphtha are not worked at all, or at all events only when prices rise. (4) That the highest possibility of the annual supply from the Baku region is far from being attained yet, judging of the small number (about 170) of wells now at work and taking into consideration the large space of land covered, undoubtedly containing naphtha, but not used for exploitation by the owners (as Mirsoieff and Kokoreff) for want of the required capital, and the lands belonging to the Government, which are also left unexploited owing to the requests of the owners of the wells, who are afraid of new competitors. (5) That the highest degree of productiveness as regards crude oil in the Baku region is only attainable when the pipe-line to the Black Sea is constructed. (6) That even admitting the possibility, in the far future, of the exhaustion of the Baku oil-bearing region, still other regions of the Trans-Caucasus will be available, and by means of the then existing pipe-line will be able to afford ample supply both to the Black Sea and the Caspian Sea. (7) That in consequence of the relative geological recency of the formation of naphtha in the Caucasus, and of the continuation of the activity of the mud volcanoes, it would be quite unsafe to say that even at the present time those underground processes do not continue the result of which is a replenishment of the oils, this being very likely forced up by internal pressure though layers of superficial sands. (8) That the principal expedient for counteracting exhaustion must be considered to be the increase of the utility of the naphtha; in other words, it ought to be worked up into more valuable products, as benzine, heavy oils, vaselin, and tar, in addition to the products only now obtained, viz., kerosene and lubricating oil; for the residues (astatki), which are used now as fuel, can with great profit to the country be substituted by coal, since the exploitation of the abundant seams of that mineral to be found on the Donetz, Ural, and in the environs of the Moscow district, etc. would be an easy mater. Owing to the above-stated reasons I am decidedly inclined to consider the construction of the Caucasian pipe-line an absolute necessity for the prosperity of the naphtha industry in the Caucasus. This view has been hitherto strongly held by the Minister, M. N. Ostrowsky, who still continues to hold it, notwithstanding the strong opposition of the Baku people, because of their supposed personal interests—supposed interests which would nevertheless directly oppose themselves to the general interest of Russia, and more or less to that of the world at large. For further details I must refer you to my book, which I have the honor to transmit, together with this letter.

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*Pood=36.08 lb. avoirdupois.

"The clearest proofs of the correctness of the opinion that in Baku there are no signs of exhaustion, are to be found in two circumstances:

(1) At the end of the year 1886, and in the following year, when comparatively very few new borings had been made, such large flows of naphtha took place, that, until that time, their like was never before observed, never either in America or in Baku:

(2) During the years following, the productiveness in the same region, just as before, increased from 116,000,000 poods (about 1,900,000 tons or about 12,000,000 barrels), as in 1885, to 180,000,000 poods, as in last year, 1888.* However, when exhaustion occurs, as in the Pennsylvania region, the productiveness of the said region falls off very quickly, and the naphtha fountains disappear there, and are replaced by water or only gas fountains. According to information received recently from Baku (during 1889), from the 1st January to the 1st August, about 125,000,000 of poods of crude oil have been already extracted, and several powerful fountains have been spouting up their contents this very year.

"Particularly productive was the flow of Mr. Kotscheieff's spring, and the greater part of its crude oil ran into the lake of Romanino, as is almost always the case under similar circumstances in Baku. Consequently, without any doubt, there are no signs of exhaustion of the crude oil in the Baku region up to the present time.† I will not attempt any examination of the different forms of ignorance or duplicity which prompt the framing of such calculations or commercial speculations as those referred to. They are based on the foibles of human nature, and are of but ephemeral stability.

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*In Russia all the reports with regard to naphtha represent the weight, and not the volume. 1 pood = 16.38 kilograms, or metrical ton is about 61 poods (or puds). In America all the reports of naphtha are given in the measure of capacity, viz, in casks and barrels. A normal barrel contains 40 gallons, but accounts are more often given of barrels of 42 gallons. One gallon contains 4.54 kilograms of water, consequently, at the specific gravity of about 0.8 as for the light varieties of American naphtha, each barrel (42 gallons) will average about 152 kilograms, or contain about 9¼ poods of naphtha. For such comparatively heavy kinds of naphtha as are usual in Baku, and having the specific gravity of about 0.86, 42 gallons must be reckoned as about 164 kilograms, or about 10 poods of naphtha.

†The upper layer in the smallest part of the now-worked region show a diminution in abundance of crude oil (they yield less than before per day), and from these layers the gas has already escaped; but the deeper layers are as yet full of crude oil saturated with gas, and in the very depths of the same, that is to say the very lowest layers, there was no need to go, because up to the present the depth of the ordinary wells at Baku does not exceed 700 to 900 feet, whilst in America the depth of the same often exceeds 1,500 to 2,000 feet. As regards some dry holes which never did

"I will try now to offer some definition of the connection between the geological or physiographical position of the springs, and the supply of material, in accordance with the personal acquaintance I have formed with the subject. As the Alleghany Mountains—in the geological sense—have served to indicate the Pennsylvania issues of naphtha, just in the same way the mountains of the Caucasus—between the Black and Caspian Seas served to indicate in that district the naphtha there. Respecting the reason of connection between the mountains and the issue of naphtha, I will not speak here, because I desire to remain on practical ground without entering upon that of hypothesis.* But the connection of the mountains with the naphtha-beds is clear from the fact that the districts facing or fronting the mountains are the regions where naphtha is obtained. They lie, indeed, parallel to the direction of the mountain range. The Devonian and Silurian sand strata of Pennsylvania are similar in this respect to the naphtha sands in the new Tertiary strata of the Caucasus. The former are, however, geologically old, the latter are recent. Here is the fundamental distinction between the American and Caucasian naphtha deposits. With them are probably united two other fundamental distinctions. Firstly, the naphtha in Pennsylvania has been found only on the westernside of the Alleghanies, but the Caucasus is full of naphtha from the north, south, and on both sides, at the Black and Caspian Seas. This must be explained in the following manner: The old beds had many natural opportunities of getting opened, of letting out their naphtha supply, of getting washed away and becoming lost for the use of the people, but the younger naphtha deposits of the Caucasus had less chances of this. Secondly, near the Alleghanies and near the naphtha wells of Pennsylvania there are no mud volcanoes, which are to be found very often in Baku, in Tamany, and generally near the Caucasus, and form, so to say, the natural satellites of naphtha. They are evidently the breathing holes of the terrestrial interior, which evolve mud, water, and steam, and let out the burning gas. In Pennsylvania, long ago this process terminated, which thus still continues in the Caucasus. We find naptha here and there in similar conditions with regard to space, but the conditions of geological periods in both countries are very different. Comparing Pennsylvania with the Caucasus we must constantly bear in mind these differences. Ignoring them, we fail to explain peculiarities which become very clear after comparing Pennsylvania with the Caucasus. As regards the Caucasus, so long ago as in biblical times, and, indeed, long time before the Russians came there—

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yield any crude oil, and some wells which diminished their yield, as well as the diminution in abundance of crude oil in the upper layers, whilst the local productiveness gradually increases, these clearly can not be taken as signs of exhaustion, they are but normal conditions of ebb and flow, which are determined by the natural conditions of the layers of naphtha. By the naphtha exhaustion of a given place must be understood the cessation of so far profitable yields from all the wells conjointly (taking the old as well as the new wells) of the given locality. One well may yield more naphtha than hundreds of unsuccessfully chosen borings, and if the general quantity of supply increases, especially when at the same time the chances of a successful boring are favorable, and if there are besides naphtha-bearing regions, as yet untouched, which undoubtedly will yield rich supplies (such regions are near the village of Romany, in the environs of Baku), then there is no foundation whatever for talk about exhaustion.

*My hypothesis of the origin of naphtha explains this connection. It is explained in my work "The Naphtha Industry in Pennsylvania and in the Caucasus, 1877." Also, in the "Revue Scientifique," 1878, and "Iahrbuck" d. K. K. Geolog. Reichsanstalt, (Wien) Bd. 29. 165.

the inhabitants of the place used the naptha which came then to the surface as illuminating oil.* To give the names of these naphtha-bearing districts surrounding the Caucasus on all sides, would serve no other object than filling several lines with names. But the question arises, why does working only take place in Baku? Why is naphtha not obtained in Tamany, Gury, on the Terek, Chemakhy, and such other localities of the Caucasus, in such large quantities as near Baku? There are two essential reasons for this. The first is, that the Volga, ever since ancient times has formed the principal water-way to Baku, and along this same water-way the Russo-Asiatic commerce is still carried on. Near Baku there is a rock which bears the name of the robber Stenka Rasin, who is reputed to have gone there with his evil-minded comrades for the sake of plunder.

"To Russians this road is well known. From Baku to Vischny, to Perm, and to the very heart of Russia, all the naphtha products go by water, and at such cheap rates that it is less costly to get over all this distance of many thousand versts (1 verst = .66 mile), than to transport the naphtha, even from Chemakhy, over a hundred versts by land. This is the principal reason of the prominence of Baku, which is also situated on the sea-coast, and has developed its naptha industry since the year 1860. The initiative in this direction was taken by Mr. W. A. Kokoreff, who wishes to supply Russia with illuminating oils. There was also another reason. Many borings have been made at Kuban (A. N. Novoseltzeff, Mr. Twedel, the French Society), and also near the Tzarskie Kolodtzy (Simenee), but there, as in Pennsylvania and Virginia, the naphtha is not found in such abundance; there are very seldom springs to be found. The naphtha must be drawn or pumped, in order to collect it. Consequently the naphtha costs there almost the same price as in Pennsylvania, from 10 to 12 copecks per pood on the spot; but in Baku, the very first wells, especially in the years between 1870-80, yielded such an abundance of naphtha that wells which yielded less than 200 poods per day were not worked at all, for working expenses would not be covered. This is owing to the price of the crude oil on the spot in Baku, which very often, when there are no springs, is 2 copecks, and sometimes 3 copecks, per pood, or even more; but if springs burst forth, the naphtha of which goes to the lakes situated amidst the wells, then the price goes down very often to one-half copeck per pood, provided that only a part of the 100,000 poods of crude oils yielded daily by the Baku springs can be gathered.*

"Such natural abundance of naphtha as occurs in the Baku region has not been

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* The people then held the Baku naphtha sources leasehold from the Persian Government, for commerce with the naphtha as an illuminating oil was highly developed near the Caspian Sea.

†The price of the crude oil in Baku, much more than in America, where there are store reservoirs, changes very much in accordance with the demand, because this material is scarcely stored up at all, and the naphtha is sent direct to the refineries according to the periods of sale. Then, but especially in the summer, during the navigation on the Volga, the work at the wells is increased, as well as the distillation in the refineries. Thus the increase of prices of the crude oil, of which the English newspapers are now talking so much, and which corresponds with that of the prices of the crude oil in America, where the average price in 1877 was 67 cents per barrel, and was never lower in any year whatever. In 1888 the average price was 88 cents; and again in June 1889, 84 cents, and in July 1889, from 90¾ to 102¼ cents on the spot according to the quotations of the Pittsburgh Exchange. This is by no means a sign of exhaustion, but merely that during this summer the demand for kerosene has increased. Owing to this, new borings have been commenced, and it may be anticipated, as it very often was in Baku and in Pennsylvania, that next year the supply will surpass all demands, and prices will go down. For my own part, I must remark that when the price for crude oil becomes 1¼ copecks per pood, there can not be expected any development of the supply; there will be a stoppage, and not an increase of the business, although the owners of refineries have their profits in it.

The price of 5 copecks per pood, according to my opinion, is a desirable and a nor-discovered up to the present in any other parts of the Caucasus which have been as yet tested by borings, nor in Pennsylvania, nor in Canada, nor in any other part of the world. Very likely there is some connection between this fact and that of the mud volcanoes, which are up to the present active, like those of Kyr-Maku, which are situated close to the naphtha region of Balakhani in the environs of Baku.

"There is a Russian adage: 'From good no one will expect anything else but good to spring.'

"This adage is well applied here. From the existing good in Baku there has been no need up to the present to look out for any other good thing. There are plenty of places on the Caucasus where naphtha may be sought for, and amongst them possibly might be discovered regions not worse than those of Baku, springs, equally powerful and recent, and certainly more durable than those of Pennsylvania, but there exists no motive, because in the very environs of Baku there is plenty of land, without any doubt, containing naphtha which has not yet been touched, owing to the following reasons: The Government having sold, in the years following 1870 (according to the rules of the 17th February, 1872), one part of the naphtha-bearing lands, afterwards stopped the sale and the lease of such lands. Kokoreff and Mirsoieff were the principal buyers from the Government of large districts containing naphtha; each of them bought lands for 1,000,000 of roubles. They began and continue to work only on very insignificant parts of their large territory (because they have spent so much for the acquisition of land that they have little left for working capital), and now wait until the lands and naphtha rise in price and value. The government does not allow the local peasants to sell or to lease their lands for the purpose of getting naphtha. Consequently the district worked years ago in the environs of Baku is the same district now.* And one's astonishment is excited that on so small a spot, altogether about 5

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mal one, and one calculated to develop supply. Such a price being 3 or 4 times lower than American—(5 copecks per pood=50 copecks per cask, or about 25 cents per barrel, according to the present exchange, but in Pennsylvania a cask or barrel costs on the spot now not less than 90 cents)—can not act sensibly on the price of the naphtha products, which, owing to a simple speculation fluctuate a great deal more than from the fall or increase of the price of the crude oil in the above-mentioned proportions, viz, from 3 to 5 copecks per pood. Here I will make the remark that since the year 1887 the price of crude oil in the United States has risen from 67 to 95 cents per barrel, or per each pood about 6 copecks, but the price at Baku for the same period did not rise more than 3 copecks per pood. If there were a possibility of competition of the Baku naphtha with the American, then the same possibility now remains. With the termination of the pipe-line this possibility would be still more evident. Until now there has been no possibility of the export of large quantities of products, but then there would be; now there is no possibility of extracting large quantities of illuminating oils not presenting any danger with respect to risks from fire, but then there would be. Now the Americans with their numerous pipe-lines fix the prices of the naphtha products all over the world, but then this can and will also be done by the Baku people; now there are no large profits left in Baku, but then would arise the possibility of making new borings in all the Trans-Caucasus, out of the profits derived from the naphtha.

I may state here that the price of the Baku naphtha products mostly depends on the use which is made of the naphtha, that is, to work up into products, also the residues (astatky or astatki), which remain after the kerosene has been got from the naphtha.

(1 copeck=$\frac{1}{100}$th rouble, and the par value of a rouble=38$\frac{3}{64}$ pence English.—Ed.)

* Whilst in the United States, from the year 1860 and upwards (on account of the rapid exhaustion of each region) people were obliged continually to go over to new regions in search of supply of naphtha, and tens of thousands of borings were made from 1876 to 1886 no less than 31,707) on a surface of hundreds of square kilometers, whilst all this time operations were confined rigidly to the already-mentioned 5 square kilometers in Baku.

square kilometers, people continue until now to make new borings, continually pump the naphtha, and still continually get springs bursting forth. It is not at all strange that formerly the depth of the wells was only a few sagenes (1 sagene=7 feet); later on the workers had to go deeper, to 40—80, and afterwards to 100—120 sagenes. We do not observe anything like this in Pennsylvania.* In the geologically young Baku, people have remained all the time on the same spot, on the same 5 square kilometers, and have continued to pump only such wells as yield every day on the average not less than several hundreds of barrels. In Pennsylvania the number of working wells during the time of the highest period of supply, which was in 1882, attained nineteen thousand wells, and 30,000,000 barrels of naphtha have been got in a single year; † consequently, every well yielded per day only 4½ barrels, on an average; or taking (light naphtha) a barrel of 9 poods, about 40 poods. Now, at Baku there are at work about two hundred wells (the exact number is very difficult to state, there do not exist as yet proper statistics, but there are such wells, and only pumped when the

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*In those geological periodsam, ounting to thousands of years, during which were formed the naphtha beds of Pennsylvania and the Caucasus, the naphtha seems to have risen to the surface, become oxidized and evaporated, and was thus lost for exploitation. If the naphtha had not got out by itself from the underlying beds, people would never have known of its existence. During these long geological periods a small stream of the outflowing naphtha could empty a very rich layer a great deal better than hundreds of bored wells. Owing to this, every naphtha field in the Caucasus is more to be relied upon with regard to the quantity of naphtha to be obtained than similar fields in Pennsylvania. For this reason, also, ideas as to the approaching exhaustion of the working region in the Caucasus, based upon signs manifesting themselves in America, can not be entertained. Besides, there is nothing to prove, as yet, that the formation of naphtha in the Caucasus is completed. The mud volcanoes here give vent still in very strong eruptions.

† The daily receipt of crude oil in the United States from that time diminished very greatly.

The daily yield was—

	Barrels.
1882	82,303
1883	63,336
1884	67,684
1885	59,921
1886	70.729
1887	59,061
1888	46,700

But in Baku at the same time the supply greatly increased, giving the quantities in barrels (1 barrel=10 poods), the general average of the daily yield was—

	Barrels.
1882	13,838
1883	16,541
1884	24,653
1885	31,851
1886	32,889
1887	41,500
1888	50,312

Here we must call attention to the fact that out of 37,000,000 barrels which were in stock in the United States of North America in 1884, now there are only 14,500,000. But in Russia the stock increases from year to year, because people have begun to construct reservoirs. When the pipe-line is constructed, this stock will no doubt still further increase.

demand for crude oil increases), and during seven months there have been received about 125,000,000 poods,* and consequently per day on an average every well yields about 2,800 poods or a barrel of 42 gallons, containing about 10 poods (we include the heavy naphtha), the average daily receipt of naphtha in Baku is, at the present time, 280 barrels from each well. In February 1886, of which period I have full reports, there were in operation about 170 wells, and the daily average yield was 446,000 poods or, per well on the average, about 2,600 poods per day, consequently an increase and not a decrease in the supply is visible. Let us take for comparison the figures of the last Stowell's Petroleum Reporter, Pittsburgh, Pa., United States of America (August 1889). During the seven months (up to August 1, 1889) the average daily yield of naphtha from all the wells in the United States of America was about 56,000 barrels, or about 510,000 poods, whilst in Baku it was about 580,000 poods per day. These figures are very close one to another, although eight years ago the supply in Baku was six times less than in America. During the seven months of 1889, in the United States of North America, 2,800 new borings were made, and during last year (1888) 1,515 borings, whilst in Baku all the time from the beginning of the years of 1860 until the present time, the number of borings are much below any of these figures. Let us suppose that now there are working in the United States only those wells which have been made during the last four years,† the average number of them will be about 11,200 wells, against 200 wells in Baku consequently, the average daily supply of each well in the United States is 45 poods or 5 barrels, whilst in Baku it is 2,800 poods or about 280 barrels. The daily average of the yield of the new borings in America (June and July, 1889), does not surpass 16 barrels or 150 poods of naphtha. Such wells not one of the Baku naphtha-owners would be willing to work, because at the price of 3 copecks per pood, the 150 poods of naphtha would give an income of about 4 roubles 50 copecks, but the maintenance of the steam-power, ropes, and workmen, amounts, per day, to about 6 or 7 roubles. Even at the price of 5 copecks 150 poods would not cover the working expenses and the cost of the boring, at the existing prices of the same in Baku. Consequently there is nothing astonishing that on the spot where naphtha is received in the United States of America, the price for naphtha is much higher than in Baku. In America about 90 cents per barrel or about 18 copecks per pood is the figure, while in Baku from 2 to 5 copecks per pood or about 10 to 25 cents per barrel.

"If in Baku there should be anything like the state of the North American wells with regard to their quantity or their supply, or with regard to the extension and changes of regions or even with regard to the prices of naphtha, then it would be possible to speak about the exhaustion of the Baku region. But even then there would be left the lands belonging to the Government, to the peasantry, to Kokoreff and Mirsoieff, which are until now untouched, and are quite near to Baku, without reckoning the neighboring lands, and the whole of the north and the south of the Caucasus, where the making of borings is not prohibited, but where it would be insanity to begin borings when in Baku: (1) The pumping is going on when there is a demand; (2) When not all the land has been investigated; (3) Before there really are observed any signs of exhaustion; and (4) When there are no great pipe-lines, which could at a low price convey the naphtha to the Black and Caspian Seas.

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* It is known that figures separately taken (and not conjointly) of the statistics very often are not sufficiently exact. But if we take that the supply during the seven months of this year in Baku was really 125,000,000 of poods, then it will be easily understood why the prices for crude oil went up, because the refineries demanded more than in former years. Besides at the present time the price for the crude oil in America went up, and Baku must be already considered as a rival of America. All the rumors of the exhaustion in Baku began when the prices of crude oil went up. This is a matter of commercial transactions, but the exhaustion is a matter of nature, here does not exist a direct connextion.

† In former times Stowell's Reporter gave the number of working or active wells (for instance, in 1885, as 23,586 wells), but now it does not exhibit these figures, which are very difficult to prove.

"But why is the working of the lands not allowed for those who desire to operate them? Why is the pipe-line not constructed? All this, combined with the rumors of exhaustion, form very complicated questions, principally owing to the manner in which the local people act. About this, however, I may say something on another occasion. Suffice it to say, I do not know of a single sign of the incipient exhaustion of naphtha in the Baku region. But suppose I admit the fullest exhaustion of the naphtha in Baku, let us see what may follow next in the Caucasus, supposing at the same time that the pipe-line there from Baku to Batoum is finished.*

"Along the pipe-line there are plenty of naphtha springs, not only from Baku to the south and west, but also in the interior of the country, near Tsarskie-Koloettzy, near Tiflis, near Kutais, in Gouria, etc.

"These places, when the pipe-line exists, will be united by pipes with the Caspian Sea, as well as with the Black Sea, and will consequently be, with regard to commerce, exactly in the same position in which the North American naphtha regions are.

"At Philadelphia, New York, Buffalo, etc., etc., the refineries will be at the seashore, but the naphtha wells will be on the continent at a distance of 100 versts. And if even in one of the districts of the Trans-Caucasus there will be found naphtha in abundance, this will be at a low price conveyed to the sea, but at all events, on the sea-shore it will not be dearer than the American naphtha, for the Caucasian naphtha is young, whilst the American is old. Nowhere, not even when borings are made by hand, and the naphtha is got out by bailing, does the naphtha cost in the Caucasus the 18 copecks per pood which are paid on the places of supply in the United States of America. Owing to the present means of boring, and the knowledge people have acquired of this business in the Caucasus, and thanks to the Baku supply, one can be sure that the average price of naphtha on the spot in the whole Caucasian district will be always one-half or one-third cheaper than at present American prices. The pipes of the Caspian-Black Sea pipe-line will offer then a conveyance to this naphtha which does not exist now, because in the Trans-Caucasus there is only one road—the railway—the only line which is bound to convey all the risky products of this country.

"And notwithstanding that there is against the pipe-line a powerful intrigue, the latter can not succeed in changing the real state of the business. The nearer the period of exhaustion approaches, the more powerful becomes the cause of the pipe-line.

"For the present, besides the local use of the Caspian region, there are only two ways for exterior sale—the Volga, which is frozen during the winter, and the Trans-Caucasian Railway. By the Volga the naphtha products go to Russia, and only a small part of them abroad (by a very dear and tedious system of conveyance, Nobel's, by the Volga, and then by rail to Libau, etc.).

"In this way about 25,000,000 of poods of refined oil are conveyed.† And about the same quantity can be sent by the Trans-Caucasian Railway to the south of Russia and abroad. This is all that can be sent from Baku at more or less profitable prices out of the 180,000,000 to 200,000,000 of poods of the naphtha gained. It is clear that a great quantity of naphtha is left, and this is a kind of cheap merchandise (astatki), which is used as fuel, instead of coal, of which there are immense supplies in the Don and Ural. Meanwhile, out of this astatki can be got, as experience has proved (and this has been demonstrated in the Physico-Chemical Society), together with kerosene, a safe illuminating oil (point of inflammation higher than 40° C.), which I named Baku oil. At present it can not be produced, although 50 to 60 per cent. of it can be got out of the Baku naphtha (besides benzine, lubricating oils, vaselin, and tar), and consequently could be obtained from it now at Baku to the extent of 100,000,000 poods. But at present there are only means for the transport of 50,000,000 poods of illuminating oils. But when the Baku crude oil can be conveyed by the pipe-line to the Black Sea then there will be great profit in producing similar safe oils, which will increase the use of naphtha illuminating oils.

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* Without the pipe-line, then of course the naphtha business in the Caucasus will be at an end, Russia itself will get the naphtha products from America. Where the construction of pipe-lines is unhindered, Europe and Asia will pay America for the naphtha, that which the Standard Oil Company will demand, and the use of the cheapest naphtha illuminating oil will considerably diminish, because with the Virginia and Ohio naphtha much can not be doing. From this it is plain who will have the best of the exhaustion at Baku, if there is no pipe-line.

† Of course in this way a great deal more could be conveyed; astatki as well.

"Consequently, all rumors of exhaustion of the Baku naphtha regions must nor stop the English and Russian people who have commenced operations with Caucasian naphtha. The naphtha will suffice for the whole world, for all purposes.

"If there should arise new and still more artful and insidious arguments in order to delay foreign transactions with the Russian naphtha products, as I have some reason to believe will arise, then please have the kindness to inform me, that I may render such further explanation as may be necessary. The substance of the matter is, that Russia itself uses so little of the illuminating naphtha oils (about 20,000,000 poods annually), and the abundance of the Caucasian naphtha is so great, and the expense of getting the naphtha so slight, that the exterior commerce with the naphtha producers is on the one hand an important help for Russian industrial interests, and on the other gives to the world the cheapest naphtha products, and thus leads to mutual benefit.

"To everything that will be purposely stated against this affirmation I am ready to reply, for the sake of the interests of my country and of the universal development of peaceful commercial relationships and transactions. I consider it of great importance that our country is able to supply the world with an illuminating oil, safe as regards risks from fire, which is more than can be said of the American kerosene, which it is bound to replace ultimately."

August 27 (September 8), 1889.

FIRES IN MOSCOW IN 1889.

Causes unknown	219
Want of care	126
Chimneys on fire	75
Upsetting of petroleum-lamps	22
Defective flues	19
Incendiaries	3
Total fires for the year	464
Greatest number occurred in June	51
Least in February	26
Fires broke out at 11 p. m	28
At 2 a. m	28
At 5 a. m	27
At 9 p. m	27
At 3 a. m	25
At midnight	23
At 1 a. m	23
At 4 a. m	23
At 7 p. m	23
In dwellings	197
Outhouses, stables, etc	123
Shops and offices	61
Workshops and factories	60
Government and public buildings	13
Miscellaneous buildings	10
False alarms	27
Total ten years, 1880–1889, inclusive	4,163

Claims paid by sixteen fire insurance companies for 1889 $1,200,000, or about $10,000 in excess of 1888, although the number of fires in 1888 exceeded those of 1889 by 33.—[N. Wertheim, Consul, Moscow.]

Shipping at Reval.—It is very much to be regretted that the American merchant marine does not appear to make any effort to compete with European flags in the carrying trade to this port, as in former years. There arrived from the United States at this port during the year 1889 twenty-six vessels, twenty-three steamers, and three sailing vessels, representing a tonnage of 30,673 registered tons, nearly all of which flew the British and Norwegian flags. Why should not American vessels monopolize this, their own carrying trade? Yet not a single American vessel entered this port during the year.—E. VON GLEHN, *Consular Agent, Reval, April* 27, 1890.

CONSULAR REPORTS

ON

COMMERCE, MANUFACTURES, ETC.

No. 121.—OCTOBER, 1890.

SAO PEDRO DO RIO GRANDE DO SUL.

REPORT BY CONSUL BENNINGTON.

LACK OF STATISTICS.

To one who is accustomed to the many excellent statistical publications of every department of government in the United States, whether federal, state, or city, the difficulties attending every effort to obtain reliable information in this country can not be fully appreciated. By study and by application to private and official sources I have obtained some information on the present condition of this state, which may not prove uninteresting to the commercial public of the United States.

FLOUR IMPORTS.

The two principal imports into this state from the United States are flour and refined petroleum. In regard to the former, owing to the importation of wheat in grain, which is ground in mills at Rio de Janeiro and in other parts of the country, the importations at this port from the United States declined over 1,500,000 kilograms in 1888, as compared with 1887. Not only is this true of the importations from the United States, but of every other country from which flour is imported, namely, Austria, Chili, Argentine Republic, and Uruguay. The success of wheat growing in Uruguay and the large shipments of flour from Montevideo, not only to this, but almost to every other country, north and south, has brought many people here to consider the question of wheat growing, as the soil and climate of a large part of this state is similar to that of Uruguay.

The following table shows the condition of the flour trade at this port:

Flour dispatched from the custom-house of Rio Grande do Sul for the calendar years 1887 and 1888.

Whence imported.	1887.		1888.	
	Quantity.	Value.	Quantity.	Value.
	Kilograms.		*Kilograms.*	
Austria	1,016,272	$51,965.00	282,920	$15,104.00
Chili	220,800	11,040.00	....	....
Argentine Republic	442,842	23,618.00	200,040	10,669.00
Uruguay	1,709,179	89,798.00	1,519,054	78,840.50
United States	3,618,945	214,235.50	2,013,183	83,056.00
Total	7,008,030	390,656.50	4,015,197	187,619.50

There is, also, another thing which causes the people to consider whether or not they shall produce their own bread, and that is the extremely low price which has been ruling for cattle for more than a year past, and for animal products generally, as, for instance, dry hides, that were worth 540 reis per kilogram in November, 1888, are worth to-day in this same market 360 reis per kilogram. In November, 1888, exchange was 27*d.* (gold) to 1 milreis of paper currency, and to-day it is ruling steady at 27¼*d.* This decline in price does not correspond to the increase of the gold value of the paper currency, the circulating medium of the country, for in the first instance the decline is 40 per cent. and in the latter the increase is less than 1 per cent.

These low prices are not so much attributable to local causes, such as an overproduction, but chiefly to the state of foreign markets; and the cattle breeder, realizing that the price of his products may greatly decline for reasons beyond control, is seriously inclined, in view of an increasing demand for bread, to follow, in part, agriculture, as being more profitable than extensive cattle breeding.

The following table shows the flour importations from foreign countries into this state from 1882 to 1885, inclusive:

Years.	Barrels.	Bags.
1882	66,627	98,152
1883	67,260	49,351
1884	79,916	41,008
1885	74,746	69,832
Total	288,543	258,341

Four-fifths of the above importations were estimated to be from the United States. The weight of the bags ran from 10 to 200 kilograms each.

WHEAT IMPORTS.

As far back as 1805 people in this section of Brazil cultivated wheat extensively, and, considering the sparseness of the population at that time, wheat was no inconsiderable part of their exports.

The following table shows the amount exported from Rio Grande do Sul from 1805 to 1820, inclusive:

Year.	Quantity.	Year.	Quantity.
	Bushels.		*Bushels.*
1805	126,825	1813	341,087
1806	87,755	1814	270,259
1807	140,338	1815	288,447
1808	257,308	1816	299,621
1809	254,038	1817	133,359
1810	190,545	1818	76,395
1811	205,534	1819	121,542
1812	213,928	1820	109,608

WHEAT AND FLOUR PRODUCTION.

Shortly after 1820 rust caused one or two general failures of the crop, so that wheat growing was abandoned for cattle breeding. It is said that much of the soil in this state is well adapted to the growth of wheat, not only in the south and west, but in the wooded regions of the north. Italian colonists have produced some enormous yields; however, they soon declined, because they did not have sufficient lands cleaned to properly rotate the crops and paid but little attention to that regulation of good farming which requires exhausted soils to be fertilized with manure.

By personal observation made of the country for more than 200 miles northwest of this city, reaching almost to the Uruguay frontier, I can say that it is naturally rich and one of the most beautiful I have ever seen, especially in the vicinity of Candiota, a station on the Rio Grande and Bagé Railroad, distant 225 kilometers from Rio Grande, which has been suggested as an excellent location for the operations of a large syndicate in wheat farming—an enterprise I would not be surprised to see undertaken at no distant day. At Pelotas, this state, there is a flouring-mill grinding imported wheat, which is admitted by the payment of 5 per cent. duty on the declared value.

On the 12th day of October last the first cargo of American wheat entered for this mill from New York, consisting of 11,600 bushels, costing in the United States about $1.25 per bushel; freight, 40 cents per bushel; insurance, about 2 per cent.; and import duty, 5 per cent. on declared value; making a total cost of $1.74 per bushel in Pelotas. By the process used in this mill the yield of flour will be about 70 per cent., or 4⅔ bushels of wheat will make 196 pounds of flour, costing, outside of milling expenses, $8.12. The retail selling price of the best brands of Richmond flour at this time is the equivalent of $9.18, leaving a margin of $1.06 per barrel for the Pelotas flour, which, I think, is too small for much profit, considering the great care required in handling a cargo of this kind to avoid damage; and I apprehend that all importations for the future will be confined to wheat from the Rio Preto, Argentine Republic, and Uruguay.

IMPORTS OF SILKS AND WOOLS.

I have now passed the most important of our productions that find sale in this part of the country. In silk and woolen manufactures we have practically no trade, so far as can be ascertained from official statistics. The following table shows who controls the trade in these lines:

Silk and woolen goods dispatched from the custom-house of Rio Grande do Sul for the calendar year 1888.

Articles and whence imported.	Quantity.	Value.
Woolen goods of all kinds:	*Kilograms.*	
Germany	6,800	$11,340.00
Uruguay	659	1,101.00
France	67	214.00
Great Britain	6,269	9,826.50
Italy	80	133.50
Total	13,875	22,619.00
Other manufactures of wool:		
Germany		40,992.50
Uruguay		349.00
France		6,835.00
Great Britain		1,665.00
Total		49,821.50
Silks:		
Germany	562	12,931.00
Belgium	15	152.50
Uruguay	16	2,037.00
United States	68	453.50
France	656	12,304.00
Great Britain	24	1,556.00
Italy		430.00
Portugal		12.00
Total	1,341	30,376.00
Grand total		102,832.50

PETROLEUM IMPORTS.

In regard to refined petroleum, I know of no other country competing with the United States in supplying the markets of this state; yet the following table shows no inconsiderable quantity imported from Hungary, and, at the same time, a decrease in the importation at this port in 1888, as compared with 1887:

Whence imported.	1887.		1888.	
	Quantity.	Value.	Quantity.	Value.
	Kilograms.		*Kilograms.*	
Germany	300	$112.00	30	$3.00
Hungary	19,064	1,973.00	8,769	913.50
United States	359,981	36,565.00	72,777	7,569.50
Great Britain	20	25.00		
Total	379,365	38,675.00	81,576	8,486.00

For the marked decrease in importation I am unable to account; but, as for Uruguay being the origin, is simply explained by saying that all petroleum dispatched from here, manifested in Montevideo, is credited as having origin in Uruguay, though, of course, it came from the United States through some importing house in Montevideo.

IMPORTS OF COTTON GOODS.

In certain kinds of cotton manufactures the United States makes some showing, as will be seen by the following table:

Cotton goods dispatched from the custom-house of Rio Grande do Sul for the calendar year 1888.

Articles and whence imported	Quantity.	Value.
Cloths, domestics or unbleached and bleached:	*Kilograms.*	
Germany	8,269	$9,115.50
Uruguay	13,050	10,399.50
United States	15,228	11,599.00
France	152	253.00
Great Britain	43,667	40,178.00
Total	80,366	71,545.00
Printed cottons, calicoes, etc.:		
Germany	23,463	48,575.00
Belgium	286	588.00
Uruguay	22,824	47,387.50
United States	924	1,940.50
France	267	563.00
Great Britain	49,408	103,630.50
Italy	120	168.00
Total	97,286	202,852.00
Shirtings:		
Germany	6,049	6,311.00
Uruguay	11,207	12,095.50
United States	7,239	8,237.50
Great Britain	34,848	37,139.50
Total	59,343	63,783.50

From the foregoing table, it is impossible to say how much of the cotton manufactures are properly of United States origin, as I am informed by the chief of one of the largest German houses in this state that, although they handle some American cottons which are forwarded here direct from New York, as a matter of cheapness in freights and expedition in transit they have the greater part to come by way of Hamburg.

Cotton goods are therefore shipped from New York to Hamburg and from Hamburg to Rio Grande do Sul for less money than from New York direct, and so much of the cotton as comes by the way of Hamburg to this port appears in the statistical department of the custom-house as of German origin, although the same is, in fact, the product of American looms. Certain brands of American unbleached cottons, notably "Indian Head," are well and favorably known in the market here—so well, in fact, that this particular brand has been counterfeited in this state by dealers, who put a stencil imitation of the genuine upon any manufacture of cotton. In duck, sail-cloth, and fine bleached cottons manufactures of the United States have an established reputation for good quality.

BRAZILIAN COTTON-MILL.

The cotton-mill of this city, which is a part of the only manufacturing establishment of any note in the state, manufactures a very respectable unbleached cloth, or domestic, 72 inches in width, called "coboclo," weighing 375 grams per meter. The retail price of this special brand is 640 reis per meter at the mill's deposit in this city, and the wholesale price is the same, so far as quotations are concerned, but a private discount is allowed the buyer. By a comparison of the price of Rio Grande coboclo, weighing 168¾ grams per yard and 36 inches in width, with that of Indian Head, more or less same weight and width, in New York, it will be observed that the coboclo sells for the equivalent of 13.5 cents per yard without discount and Indian Head (A) for 6.75 cents wholesale and without allowance for private discounts. Taking, then, 1 yard of standard Indian Head (A) gray sheeting, which weighs about 159 grams per yard, 36 inches in width, the cheapest freight by sailing vessel from New York to this port would add about one-fifth of 1 cent to the cost per yard and tariff about 1⅔ cents per yard more, making a total cost per yard, without expense of package, ships' lighterage, and custom-house dispatchers' charges, of $8\frac{7}{12}$ cents. The raw material for the Rio Grande mill is brought from Pernambuco at a cost of from 10 to 11 cents per pound, delivered in the mill. The raw material, therefore, for one yard of coboclo costs about 4 cents, which leaves the manufacturer 9.5 cents for the expenses of making and profit; but, not being in the possession of the company's private discounts, I am unable to state what reduction is made.

The fact that American unbleached cottons are imported is proof, to a certain extent, that these mills have not surpassed them in quality as yet; but the progress made in the quality of the cottons turned out by the Rio Grande mill shows that a very formidable rival has entered the field for competition in the trade of this and other states of Brazil.

There are some other articles of American manufacture occasionally seen here, but in such small quantities as to be unworthy of note.

GENERAL EXPORTS.

Recapitulation of the exterior commercial movement of the four principal fiscal departments of the state of Sao Pedro do Rio Grande do Sul over the bar of the Rio Grande for the fiscal years 1882–'83 to 1886–'87, inclusive.

Year.	Porto Alegre.	Pelotas.	Rio Grande.	San José do Norte.	Total.
1882–'83	....	$1,741,706.41	$4,640,667.73	$122,985.16	$6,505,359.30
1883–'84	$3,169,116.62	2,012,206.16	3,799,972.95	96,798.81	9,078,094.54
1884–'85	3,508,405.20	1,909,158.48	3,756,540.60	267,640.50	9,441,744.78
1885–'86	5,128,551.58	1,825,541.87	3,847,805.50	124,506.81	10,926,405.76
1886–'87	7,740,246.59	2,291,209.13	6,032,580.50	209,287.60	16,273,323.82
Total	19,546,319.99	9,779,822.05	22,077,567.28	821,218.88	52,224,928.20

Recapitulation of the interstate commercial movement of the four principal fiscal departments of the state of Sao Pedro do Rio Grande do Sul over the bar of the Rio Grande for the fiscal years 1882–'83 to 1886–'87, inclusive.

Year.	Porto Alegre.	Pelotas.	Rio Grande.	San José do Norte.	Total.
1882–'83	....	$1,470,084.83	$2,615,460.90	$17,807.41	$4,103,353.14
1883–'84	$5,837,599.68	1,576,905.15	2,558,014.73	33,381.68	10,005,901.24
1884–'85	6,030,050.92	1,402,799.83	2,403,316.00	44,865.20	9,881,031.95
1885–'86	5,873,502.10	2,586,203.72	2,011,819.50	50,999.75	10,522,525.07
1886–'87	6,342,862.52	2,070,500.36	3,288,248.50	34,918.10	11,736,529.48
Total	24,084,015.22	9,106,493.89	12,876,859.63	181,972.14	46,249,340.90

NOTE.—In 1887 the time of the ending of a fiscal year was changed from June 30 to December 31; the fiscal year of 1887 was therefore extended to the latter date and includes eighteen calendar months.

Exterior movement, by the bar, of the state for its principal fiscal departments for the years 1882–'83 to 1886–'87, inclusive.

IMPORTS.

Year.	Porto Alegre.	Pelotas.	Rio Grande.	San José do Norte.
1882–'83	....	$89,452.56	$3,566,950.50	....
1883–'84	$2,044,888.49	115,820.20	3,104,080.43	$8,900.65
1884–'85	2,802,725.95	76,204.30	3,114,542.00	35,945.80
1885–'86	4,250,746.15	72,404.33	3,090,046.50	31,465.86
1886–'87	6,349,029.51	204,694.63	5,346,463.00	54,969.61

EXPORTS.

1882–'83	....	1,652,253.84	1,073,717.23	122,985.16
1883–'84	624,233.11	1,896,335.45	695,854.02	87,893.16
1884–'85	705,179.75	1,832,954.18	641,998.00	231,694.70
1885–'86	877,805.42	1,753,137.54	757,259.00	93,041.00
1886–'87	1,391,217.08	2,086,514.50	686,117.50	154,317.98

Interstate movement, by the bar, of the state for its principal fiscal departments for the years 1882–'83 to 1886–'87, inclusive.

IMPORTS.

Year.	Porto Alegre.	Pelotas.	Rio Grande.	San José do Norte.
1882–'83	....	$306,186.73	$1,671,463.50	....
1883–'84	$3,249,418.00	197,017.04	1,494,004.76	$5,418.75
1884–'85	3,487,173.64	331,315.38	1,938,133.50	10,460.75
1885–'86	2,860,162.93	402,954.44	1,093,819.00	....
1886–'87	3,448,711.46	634,052.61	1,683,559.00	4,723.50

EXPORTS.

1882–'83	....	1,169,398.09	943,997.32	17,807.41
1883–'84	2,588,181.63	1,379,886.11	1,064,009.96	27,962.93
1884–'85	2,542,877.28	1,071,484.44	965,182.50	34,404.50
1885–'86	3,013,339.17	2,183,249.27	918,000.50	50,999.75
1886–'87	2,899,101.00	1,936,443.70	1,604,689.50	30,194.61

The exports from this state consist chiefly of animal products, such as dried beef, grease, tallow, dried tongue, hides, horns, wool, bone-ash, bones, horse-hair, and horse oil.

There are other exports, however, which go to the north of Brazil, including the dried beef, such as corn, mandioca, beans, and onions; also, many garden vegetables to Rio de Janeiro.

The exportation of dried beef, grease, and tallow to the northern part of Brazil (mostly to Pernambuco) for the fiscal years 1887 and 1888 is shown by the following table:

Articles.	1887.	1888.
	Kilograms.	*Kilograms.*
Dried beef	6,298,257	1,408,406
Grease	174,494	28,906
Tallow	176,700	175,277

EXPORTS TO THE UNITED STATES.

Exports to the United States from this state are limited to dry hides, hair, wool, glue stock, etc., the kinds and declared values being shown by the following table:

Exports from the port of Rio Grande do Sul to the United States for the calendar year 1888, given in United States gold.

Articles.	Quarter ending—			
	March 31.	June 30.	September 30.	December 31.
Dry hides	$145,244.31	$70,619.84	$91,914.76	$121,233.67
Hair	67,067.47	11,002.77	5,669.27	51,506.84
Horses	223.61	182.82	4.17	469.63
Hide cuttings		689.98	591.37	449.88
Glue stock	6,548.87		104.02	143.71
Wool	53,212.98	723.86	6,355.01	435.05
Bones	334.16			
Wood			16.77	
Total	272,631.40	89,727.27	105,255.37	174,238.78

The total amount of exports shows a decline in shipments to the United States of $97,390.44 in 1888 as compared with the year 1887. The total shipments for the year were $641,852.82.

STEAM-SHIP LINES AND SHIPPING.

The steam service between this port and Rio de Janeiro is ample and well conducted, especially for freight. A few steamers go as high as Pernambuco, and three of one line extend their voyages to Montevideo.

The first regular line established for trade (freight and passenger service) between this port and Rio de Janeiro was the Linha do Sul, by Messrs. Lamport & Holt, in 1877, and consisted of two steamers for the first three years of its existence. This line had a mail contract with the Brazilian Government for five years, which was subsequently renewed for six more; and, by virtue of this contract, each steamer received 10 contos of reis* per voyage, which, however, was to extend to Montevideo. Before the expiration of the first five years an opposition steamer also obtained a subsidy from the Government, and in 1874 Lamport & Holt put on an additional steamer without an increase of subsidy. In renewing the contract, the Government insisted that each of the three steamers should go to Montevideo for the same money formerly paid for the service of two steamers.

After the expiration of the last mail contract Lamport & Holt sold the steamers then on hand to a Brazilian company and proceeded to put into service at once new steamers drawing less water, better adapted to the bar at all times and the shallow water in the navigation of Lake Patos, going to Pelotas and Porto Alegre.

Its first and only agent in this city, with subagencies at Pelotas and Porto Alegre, is Sinclair Robinson, esq., an Englishman of much experience in South America, who has, by shrewd business management, peculiar fitness, and system of promptness inaugurated in the dispatch of steamers, built up an extensive and profitable carrying trade for this line from this state.

This line has four steamers in service regularly between this port and Rio de Janeiro, each under the command of a skilled man, as the many wrecks that line this coast, from the bar of Chuy far away to the north, speak of the necessity of careful navigation. In about the year 1875 the Companhia Nacional de Navegação a Vapor started a line in the passenger and cargo trade; it has now seven steamers in service between this port and Rio de Janeiro, three of which extend their voyages to Montevideo. One new steamer has just been started by this company, and another will soon be added to the line, after which, I presume, two of the old steamers will be taken from the trade. This company is operating under a subsidy from the Government, and has the mail contract.

The Companhia de Navegação Costeira has one steamer for passengers and cargo going as far north as Pernambuco; its arrivals and departures are irregular. The Companhia Norte e Sul has also one steamer in the passenger and cargo trade, under the British flag, between this port and Pernambuco.

For the past ten months a number of steamers, some of which are under the direction of the Antwerp, London, and Brazil Company, have been calling at this port, bringing cargo direct from Europe, but are of a larger tonnage per register than the bar will readily admit. A very few of them have made more than one voyage, and it is highly probable that this service will be entirely withdrawn.

The steamers of all the regular lines calling at this port have been built for this special trade, registering, on an average, about 450 tons. This class of steamers never has any delay in crossing the bar and passes safely over the shoals of Lake Patos.

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* Equal to about $5,000 United States money.

The year 1888 shows a decline both in number and tonnage of vessels entering and clearing the port of Rio Grande, as compared with previous years.

Number of ships, steam and sailing, entering and clearing the port of Rio Grande do Sul, by the way of the bar, for the years 1884 to 1888, inclusive.

Years.	Entered.		Cleared.	
	Number.	Tonnage.	Number.	Tonnage.
1884	699	153,175	674	148,053
1885	682	147,744	719	153,598
1886	593	134,474	565	130,624
1887	527	122,573	550	126,705
1888	484	116,482	496	119,633

Number of steamers and sailing vessels entering and clearing the port of Rio Grande do Sul, by the way of the bar, during 1888.

Description.	Entered.	Cleared.
Sailing vessels	316	329
Steamers	168	167

According to nationality.

Nationality.	Entered.	Cleared.
Brazilian	200	198
Foreign	284	298

The movement of all shipping over the bar of the state, the countries from which and to which all vessels proceeded, entering and clearing the harbor of Rio Grande do Sul, for the years 1887 and 1888 is shown by the following tables:

ENTERED.

From—	1888.		1887.	
	Number.	Tonnage.	Number.	Tonnage.
Uruguay	41	12,122	25	7,833
Argentine Republic	2	480	3	450
United States	21	4,770	36	7,777
Portugal	7	1,396	8	1,815
Spain	40	6,349	56	9,587
Italy	1	200	2	399
Great Britain	58	9,893	56	9,504
France	4	564	4	850
Belgium	3	510	3	600
Germany	22	3,771	28	4,654
Austria	....	....	2	361

CLEARED.

To—	1888.		1887.	
	Number.	Tonnage.	Number.	Tonnage.
West Indies	11	3,139		
East Indies	2	435	1	154
United States	17	3,665	97	15,445
France	1	154	3	584
Great Britain	83	12,846	3	602
Spain	5	1,012	19	4,335
Italy	1	200	7	887
Portugal	3	621	30	8,516
Argentine Republic	9	1,641		
Uruguay	41	12,261		
Turkey	1	189		
Mexico	1	220		
Belgium			1	199

The following table shows the number of steam and sailing vessels that crossed the bar of the state of Rio Grande do Sul and proceeded to Porto Alegre, at the head of Lake Patos, for the years 1886 to 1888, inclusive:

Year.	Entered.				Cleared.			
	Foreign.		National.		Foreign.		National.	
	Sail.	Steam.	Sail.	Steam.	Sail.	Steam.	Sail.	Steam.
1886	61	41	47	37	70	41	40	37
1887	48	42	32	44	24	42	36	44
1888	33	42	38	36	30	42	37	36

HIGH FREIGHTS AND CHARTER-PARTIES.

One of the causes of high freights to this port, and one about which I have heard much complaint, is the long time occupied in unloading and loading a vessel. If thirty days are inserted in the charter-party for loading and unloading without demurrage, and only three days have been occupied in loading the vessel, the consignee, after the ship's arrival, generally uses the ship's hold as a warehouse until the very last day named in the charter-party, when the facilities here are for unloading in a comparatively short time.

In the charter-party of a vessel to be loaded for the United States or Europe a less time than thirty days is rarely, if ever, inserted, and in nine cases out of ten the entire thirty days are fully occupied in delivering the cargo to the ship. Sometimes, indeed, the thirty days in which the ship shall be loaded do not begin to run until after the expiration of fifteen days, making in all forty-five days before the ship could claim demurrage. This great length of time is not inserted in the charter-party because of any lack of facilities to load the ship, but it gives the charterer time to send one of the original charter-parties to his consignee, who, upon its receipt, will advise by wire to draw bills for not less than one-third of the estimated value of the cargo. These bills are discounted at a local bank, and, before the ship is ready for sea, the charterer has realized the amount stated on the cargo. These delays are a great annoyance and a source of expense to the ship.

Attention has been called recently to a kind of charter-party accepted by some ships arriving from Europe for Rio Grande or Pelotas. The most objectionable feature seems to be in the following clause:

> And, being so loaded, shall, within thirty days after receiving dispatches, therewith proceed to Sao José do Norte for orders to discharge at Pelotas or Rio Grande do Sul. If, after passing Rio Grande bar, it is proved that there is not enough water for the vessel to cross Pelotas bar, she must be lightened at Sao José do Norte at charterer's expense.

The objectionable feature of the clause is in the first part—"proceed to Sao José do Norte for orders"—because the charter-party failed to show in what time the consignee should give orders after notice of the vessel's arrival at Sao José do Norte, and lay days for discharging could not begin to run until the ship had arrived either in Pelotas or Rio Grande; the ship might be held at Sao José do Norte any number of days under such a charter, awaiting orders to proceed. Sao José do Norte is a small village on Lake Patos, almost opposite, and about five miles distant from, Rio Grande. If a vessel should proceed to Sao José do Norte and afterward receive orders to proceed to Rio Grande, it must sail back down the channel toward the bar for at least 3 miles, until it reached the large buoy which marks the channel entrance to the port of Rio Grande, then up the channel to the port, traversing a course more or less the shape of the letter V. This move could scarcely ever be made without a steam-tug, and involving expense for the ship; but, if the vessel is to proceed to Pelotas, then there is no inconvenience in this particular, as the vessel is right on the way. Lagoa dos Patos, while crossing a large space of territory, has numerous shallow places, which must be crossed by vessels going to Pelotas and Porto Alegre. The first shallow place is called Setias, about 20 miles from Rio Grande, covered regularly with about 14 palms of water, especially if the wind is southwest.

Pelotas is a short distance up the Rio Sao Gonçalo, which connects Lakes Mirim and Patos, discharging the former into the latter, to reach which a bar at the mouth of that river must be crossed. This bar is generally covered with about 13½ palms of water, and, when the wind is east or northeast, there is a little more. It has been giving considerable trouble recently by closing up faster than the Government dredges can remove the deposits. The current being strong and the river narrow, navigation is attended with some danger of collisions. This bar is composed entirely of fluvial deposits, which are not influenced by counter tide or current from Lake Patos to any extent, at least not enough to cause the bar to change position from time to time, as does the bar of Rio Grande.

Beyond Pelotas, on the way to Porto Alegre, is another shallow, tortuous place, called Cangussu, with about 11 palms of water when wind is northeast. These places are, perhaps, the most difficult in the lake; yet there are others about which I have no reliable information.

The bar of Rio Grande remains regular at about 15 palms, frequently 16½, and sometimes as high as 18 palms. The channel, from inside the bar up to the buoy at the entrance to the port of Rio Grande, is from 44 to 75 feet in depth; from the buoy to the anchorage of this city, and including the same, the depth of water will average about 17½ palms. A vessel of 225 tons register will be required to expend, in entering and clearing this port, for all charges, including towage, about $450.

BAR IMPROVEMENT.

The question of the improvement of the bar of Rio Grande has engaged the attention of public officers, business men, and the people generally of this part of the state for a number of years. The Government has taken some steps in the matter, but none of any importance for some months. Much time and money have been spent in experiments and theorizing, but up to this hour nothing of permanent character has been done. As far back as 1775 hydrographic plans of the bar appeared, and a number of surveys have been made since.

The Brazilian Government, realizing the necessity of some action on its part, made an appropriation for the fiscal years of 1882–'83 and 1883–'84 of $735,360 for any work, temporary or otherwise, that would remove the bar, or render navigation safer and the commercial movement of Rio Grande easier. This action was in response to the requests of a business population scattered over more than 118,000 square miles of territory to give protection to their commerce and render readily accessible the gate city of the state.

In pursuance of this appropriation, a commission was formed, with Honorio Bicalho, then director of public works, as chief engineer. The commission proceeded to the execution of its work, making all necessary observations and surveys in order to prepare plans of temporary or permanent improvement. Dredges were first procured; but in the beginning it was discovered that the barges upon which the machinery was placed rendered them unfit for service except in comparatively still water, and, further, that from the very nature of the bar, being composed of shifting sand, it would require a fleet of sea dredges to keep the bar in an improved condition. As a result of observations and surveys made, the chief engineer reported a plan to the Government by which the bar, in his opinion, could be permanently removed or improved, and at the same time requested the Government to obtain the opinion of the most eminent engineers of the day upon works of that kind, which was accordingly done, and James B. Eads, C. E., of the United States, and Peter Caland, C. E., of Holland, were invited by the Government to make personal inspection of the bar, its surroundings, and an examination of the plans and estimates submitted by Bicalho. Eads was unable to accept the invitation; but Caland did, came to the bar, made a thorough study of the matter, and approved, with very slight modifications, the plan submitted by Bicalho, which at that time was necessary, because of a change in the direction of the principal outflowing current. He made a report in the French language to the minister of agriculture, commerce, and public works, dated at Rio de Janeiro November 15, 1885, in which he gave a plan and estimates for the improvement.

The plan, in the main, is the same as followed in the Mississippi improvement; but the jetties, as designed, would be much longer, the west jetty (4,960 meters in length) and the east (3,350 meters in length) requiring the expenditure of $7,350,000 for their construction, besides $2,400,000 for the dredging of a channel between the jetties, necessitating the removal of 8,750,000 cubic meters of sand and earth. The drainage area of Lakes Mirim and Patos, which discharge their waters over the bar, is at least 64,000 square miles; the estimated rate of discharge is 5,100 cubic meters per second, with a velocity of 1 mile per hour seaward.

The propositions published by the Government, dated June 6, 1888, for tenders to improve the bar on the plan of Caland, remained open nearly a year. But two tenders were made, neither of which were accepted. The general terms of the proposition were that the plan of Caland should be followed, yet the Government reserved the right to alter any thing during the progress of the work; that the contractor should employ an engineer of skill and experience to make a careful survey before beginning operations; and that the present channel should be kept in good condition, and, in default, it would be opened at contractor's expense. The Government proposed to pay the interest on capital employed and effect the amortization of principal by collecting certain taxes—already provided by law—upon ocean, lake, and river commerce, not only upon the registered tonnage of vessels, but also upon the official value of cargo, discriminating, however, in favor of state and interstate trade against foreign vessels. The contractor was to have the privilege of erecting docks and store-houses, upon which he might collect rent. The rate of interest to be paid on capital employed in the construction of the work was 6 per cent.; the amortization of the debt was to be completed in ninety years, when the privilege was to expire. The first tender was made by Senhors Chaves and Almeida, of Porto Alegre, dated March 23, 1889, agreeing to construct on the plan and for the price estimated by Caland, on the condition that they were to have one year in which to begin operations after entering into contract and eight years to complete the work; that an amortization of the cost price should take place in thirty-eight years, when the works would be turned over to the Government.

The second tender was by the Societé des Travaux Publics et Constructions, of Paris, dated April 5, 1889. The company proposed to follow the plan of Caland, and construct works for the amount of his estimate; required ten months in which to begin operations after making contract, and seven years to complete same, with the privilege for forty years, when it proposed to turn over every thing to the Government, provided annual interest was regularly paid and capital employed returned by amortization in that time. The Government proposal was to pay 6 per cent., but this company wanted 12 per cent. for organization of necessary capital and 10 per cent. to cover probable loss sustained either by interruptions or destruction of work while in progress. From observations made by the bar commission, it is estimated that there are not over seventy days when work such as would be necessary in the construction of these jetties could be successfully carried on outside the bar, as shown by the following table:

Table showing the condition of the bar of Rio Grande do Sul during each month of the calendar years 1887 and 1888.

Months.	Smooth.	Ordinary waves.	Breakers.	Rough.	Impracticable.	Total.
1887.						
January	12	14	4	1	....	31
February	5	12	9	1	1	28
March	1	15	9	6	....	31
April	2	16	7	3	2	30
May	6	13	10	2	....	31
June	7	16	6	1	....	30
July	8	9	9	5	....	31
August	7	12	12	....	....	31
September	5	16	5	4	....	30
October	4	15	7	5	....	31
November	2	20	5	3	....	30
December	8	20	3	....	....	31
Total	67	178	86	31	3	365
1888.						
January	10	16	2	2	1	31
February	12	9	2	6	....	29
March	4	13	1	6	2	31
April	....	14	3	12	1	30
May	6	9	4	7	5	31
June	3	8	....	9	10	30
July	13	13	3	2	....	31
August	7	12	3	5	4	31
September	....	16	1	12	1	30
October	1	15	3	11	1	31
November	6	12	5	3	4	30
December	12	12	3	4	....	31
Total	74	154	29	80	29	366

At least six hundred days, with all proper available labor, will be required to complete the work; and, reasoning from the figures we have, it will require at least eight and a half years' time, making no allowance for destruction of work meantime. Inasmuch as one tender would receive no consideration whatever, it is suspected, from the similarity of the main terms embraced in both tenders, that there was some understanding between the parties before they were submitted.

Whether this supposition is correct or not, a series of well-written articles appeared in one of the principal daily papers of this city, analyzing the tenders made by both firms and demonstrating that the Government could not accept the tenders made by either under the propositions published, chiefly because of the short time in which the amortization of the capital employed should take place, and, as a matter of economy, the work should be done by the Government for its own account.

The bar at present is in a fair condition and has been for many months, as shown by the following table, which gives the greatest depths of water and number of days in which soundings were taken on the bar of Rio Grande do Sul, as reported from the soundings made by the Government pilot service, for the years 1887 and 1888:

Table showing soundings made in 1887.

Depth.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
12 palms	2												2
12½ palms	3		1	1				1				1	7
13 palms			6	2			3	1	2	2	3	1	20
13½ palms	4	1	2	1	1	1				2	3		15
14 palms	4	5	2	2	2	3	1	1	1		1	1	23
14½ palms	3	2	2	1	1	2	4	2	2	1	2	1	23
15 palms	5	3	2	6	2	4	4	7	6	2	3	1	45
15½ palms	4	3	2	3	5	10	1	2	7	3	3	4	47
16 palms	2	6	5	4	7	2	5	3	6	5	10	13	68
16½ palms	1	1	2	4	4	4	4	8	4	6	2	8	48
17 palms					3	1				1		1	6
Total	31	28	31	30	31	30	31	31	30	31	30	31	365

Table showing soundings made in 1888.

Depth.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
11½ palms				1									1
12 palms	1		2	1	1								5
12½ palms		1		1	1	1	1		1		1		7
13 palms	1			1				2			1		5
13½ palms				4	3	2		1		1	1		12
14 palms	2	1	2	5	2		2	1	1	2	2	2	22
14½ palms	2	1	5		3	3	2	1	2	5	2	2	28
15 palms	5	3	5	3	2	1	6	3	3	3	4	2	40
15½ palms	7	7	4	6	7	4	2	3	6	7	4	5	62
16 palms	7	6	8	3	4	5	4	7	4	4	5	4	61
16½ palms	3	9	1	1	2		5	4	3	3	3	9	43
17 palms	1				1	1	3	3	7		2	5	23
17½ palms							4	2					6
18 palms								1					1
Total	31	29	31	30	31	30	31	31	30	31	30	31	366

How long the bar will remain in good condition is a matter of mere conjecture. From the nature of its formation it is subject to great and sudden change, as it is composed of drifting sand, deposited at a certain distance from shore according to the influence of the lake and counter influence of the ocean currents, which, in the immediate vicinity of the bar, are regulated by the wind. The bar, which is an elliptical-shaped ridge reaching to the shore from each side of the channel, is gradually going seaward and diminishing its channel depth. In about the year 1800 it had an average depth of 15 feet; in 1849, 12 feet; and to-day, an average of 10 feet 2 inches running from 11 to 17 palms. No certainty can be placed in its position for more than twenty-four hours, and, even in its present condition, is a great obstruction to the commerce of this state which many of the people, especially in the southern part, hope soon to see removed.

PORT OF TORRES.

Recently a plan, in opposition to the improvement of the bar, has been formed for the construction of an artificial port at Torres, on the coast, a point in the extreme northeast of this state in 27° 20′ south latitude, to be connected by rail with Porto Alegre, the capital of the state, distant 240 kilometers in a southwest direction. The plan is to make the port by the construction of an artificial breakwater, inclosing a space capable of holding safely one thousand ships, leaving the entrance quite clear day and night, which is to be protected by a small island in front, with an artificial wing extending from the south end.

The construction of this port is estimated to cost £3,000,000. The projectors, who are both residents of Porto Alegre, submitted to the minister of agriculture of the old Government plans for decision, asking the privilege for ninety years. No guaranty of interest is asked, but will require the privilege to levy a tax on shipping; and the claim is made that the construction of this port will save at least 300 miles of ocean and lake travel in reaching the center of the state.

The soundings inside the proposed inclosure are now from 5 to 17 meters, and in the immediate vicinity of the entrance 22 meters, so that very large ships can be entered. This scheme, of course, has no friends in Rio Grande, but is in favor with residents of Porto Alegre. The Rio Grandeures argue that Torres can not compete with Rio Grande as a port, because the expense of shipment by rail to Porto Alegre would be much greater than lake transportation from Rio Grande to Porto Alegre.

RAILWAYS.

There are in operation in this state six different railways, two of which, however, are short lines, one of very little importance.

The Government, appreciating the necessity of commercial and strategic railways as a means of developing the country and rendering its most remote sections readily accessible, continues to promote by every means the construction of railways. For more than fifteen years it has been authorized by legislative authority to grant during thirty years a guaranty of 7 per cent. on capital employed in the construction of railways, which, by their plans and estimates, would probably have net annual earnings of 4 per cent.; but this guaranty was not to extend to a greater capital than $50,000,000. The Government has availed itself largely of this privilege, and many roads, the property of private companies, are operated under this guaranty, which is paid more or less under the condition that it shall first be applied to the liquidation of any deficit that may appear in the semi-annual balance of receipts and expenses, if there should be any deficit; if not, then the share-holders receive the 7 per cent., besides any dividend that may be declared from the net earnings of the road, which, I apprehend, scarcely ever occurs, as the following tables will show:

Table showing the receipts and expenses of Estrada de Ferro de Porto Alegre a Uruguayana for the years 1885–'88, inclusive.

Year.	Receipts.	Expenses.	Deficit.
1885	$143,870.49	$196,124.38	$52,253.89
1886	219,063.60	254,310.94	35,247.34
1887	209,670.36	293,570.87	83,900.51
1888	260,147.10	357,146.93	96,999.83
Total	832,751.55	1,101,153.12	268,401.57

Table showing the receipts and expenses of Estrada de Ferro de Porto Alegre a Novo Hamburgo for the years 1885–'88, inclusive.

Year.	Receipts.	Expenses.	Deficit.
1885	$60,792.14	$76,199.12	$15,406.98
1886	65,386.47	67,364.57	1,978.10
1887	65,753.14	68,017.65	2,264.51
1888	66,272.84	66,495.92	223.08
Total	258,204.59	278,077.26	19,872.67

Table showing the receipts and expenses of Estrada de Ferro do Rio Grande a Bagé for the years 1885–'88, inclusive.

Year.	Receipts.	Expenses.	Deficit.	Balance.
1885	$299,715.39	$280,303.20		$19,412.19
1886	329,645.03	306,364.14		23,280.89
1887	319,709.07	297,621.04		22,088.03
1888	267,702.42	304,894.80	$37,192.38	
Total	1,216,771.91	1,189,183.18		27,588.73

The number of kilometers in traffic of the above railroads during the years 1885–'88 is shown by the following table:

Name.	1885.	1886.	1887.	1888.
	Kilometers.	*Kilometers.*	*Kilometers.*	*Kilometers.*
Estrada de Ferro de Porto Alegre a Uruguayana	261.847	261.847	261.847	305.928
Estrada de Ferro de Porto Alegre a Novo Hamburgo	43	43	43	43
Estrada de Ferro do Rio Grande a Bagé	280.273	280.273	280.273	283

The railways in this state were built under the provisions of a decree made by the Government in 1873, and are as follows:

(1) The Porto Alegre and Uruguayana Railroad, in fact, has its eastern terminus at Taquary, about 40 miles northwest of Porto Alegre, on a river of same name; from thence it extents west, completed to Cacequi, 377 kilometers, dividing the state into two nearly equal parts, and may properly be termed the central railway of the state when completed to Uruguayana,

on the Uruguay River, the western boundary of Brazil. This road was built by the Government and is operated under its direction at the present time; it is 1 meter in gauge, and was opened for traffic in March, 1883. The work of completing the line is progressing slowly.

(2) The Rio Grande and Bagé is the most important, at present, of all the lines in the state, extending from Rio Grande, in the southeast, to Bagé, 283 kilometers northwest. This road belongs to an English company, with head office in London; it was opened for traffic in 1884, and is 1 meter in gauge.

(3) The Bagé and Uruguayana, or, properly, the Bagé and Cacequi, is a road now under contract for construction; how much progress has been made I am unable to state. The line of this road extends northwest from Bagé, intersecting the Porto Alegre and Uruguayana Railway at Cacequi. The entire distance from Bagé to Uruguayana is 460 kilometers.

In about the year 1884 or 1885 the Government advertised for tenders to extend this line from Bagé to Cacequi, and the English company now owning and operating the Rio Grande and Bagé Railway made a tender, which was accepted. The Government and the company subsequently being unable to agree upon terms, the concession was canceled, and in the spring of 1888 (September or October) the Government undertook to construct the road upon its own account through to Uruguayana; but, up to July of this present year, literally nothing was done, because of a difference between the Government engineer and the one employed by the constructor, whom the former, by virtue of an extraordinary clause in the contract, refused to acknowledge as a competent engineer, while it was notorious that the real cause was an old personal difficulty. Thus the realization of a great work was stopped, which would put Uruguayana in direct rail communication with the port of the state (Rio Grande do Sul), a most important thing to the state as a counterbalancing influence against her astute neighbors, especially Oriental del Uruguay, which is rapidly tapping her frontier with commercial and strategic lines at every available point. This halt in operations was made in order to give two engineers time to "fight it out" or the minister of public works should relieve them of their charges. Winter coming on immediately, little has been done since that time; and at the present rate it will be some time before the road is completed.

(4) The Quarahy and Itaquy line is a road 180 kilometers in length, running from Quarahy, in the extreme southwest corner of the state, northeast along the Uruguay River to Itaquy. This road is the property of an English company, and was opened for traffic in August, 1887; but, since that time, has sustained great damages from floods of the river Uruguay. The terminal point of this road on the south is also the terminus of a railway now in traffic, running along the same river from Salto, in Oriental Uruguay, except that the river Guarahim, which constitutes the Brazilian boundary, prevents a complete junction. The north side of this river being Brazilian and the south side Uruguayan territory, the Brazilian Government will not consent to a bridge being built across this river for the accommodation of

the railways, unless it shall have the right to destroy it in case of war with the Argentine Republic or Uruguay. This bridge matter will, however, in all probability, be arranged in a short time.

(5) A line of road running from Porto Alegre to Novo Hamburgo, the center of a prosperous German colony, is 43 kilometers in length and was opened for traffic in 1874.

(6) A line called Mina do Arrorio dos Ratos is only 22 kilometers in length, and is used exclusively for the transportation of coal from some mines a few miles northwest of Porto Alegre, which are not very extensively worked. This line has scarcely any importance as a railway.

There is a line of railway just completed from the suburbs of this city to a boating place on the sea-shore by the Companhia Bonds Suburbanos da Mangueira, 18 kilometers in length. This line is well built, is 1 meter in gauge, and the locomotives were furnished by a firm in Pittsburgh, Pa.

Table showing the movement of the three principal railways of the state for the years 1885 to 1888, inclusive.

Years.	Porto Alegre a Uruguayana.		Porto Alegre a Novo Hamburgo.		Rio Grande a Bagé.	
	Passengers.	Freight.	Passengers.	Freight.	Passengers.	Freight.
	Number.	*Tons.*	*Number.*	*Tons.*	*Number.*	*Tons.*
1885	30,852	32,261	43,872	11,007	89,149	16,092
1886	40,515	34,701	64,041	9,996	105,465	20,734
1887	36,381	33,601	54,464	10,371	95,659	21,736
1888	41,121	36,730	55,171	11,777	85,166	20,418
Total	148,869	137,293	217,548	43,151	375,439	78,980

By an inspection of the map it will be observed that this state is in the extreme southern part of Brazil and has an open frontier on Uruguay of about 400 English miles; the river Uruguay constitutes the boundary between this state and the Argentine Republic for at least 375 miles more, making an entire frontier for the state of nearly 800 miles.

It may be somewhat foreign to the subject-matter of this report to refer to the commercial and strategic railways of another country, but the relation of the lines of Uruguay to the commercial interests of this state is not only now, but for some time has been, a question of consideration and importance. And in what particular I will endeavor to show under another head of this report; for the present, I will explain the location of the lines.

Montevideo is the base or discharging point of the system of Uruguay. From that city, extending in a northwest direction for 273 kilometers to the Rio Negro, is the road called the Central del Uruguay, now in traffic to the latter-named point. From Rio Negro, at Passo de los Torres, the terminus of the Central, is a road called the Midland of Uruguay, now in construction to Salto, on the Uruguay River, which, when completed, will give direct communication with Uruguayana (Brazil) over the Quarahy and Itaquy road.

The distance from Passo de los Torres to Salto is about 200 kilometers; from Salto to Quarahim, about 130 kilometers, where connection is made with the Quarahy and Itaquy road.

From the Midland road at Belem, about half way between Salto and the river Quarahim, is a line projected, tapping the Brazilian frontier at São João Baptista, which will be, more or less, 110 kilometers in length.

The Central Railway Company is now constructing a line from Passo de los Torres to the Brazilian frontier at Santa Anna do Lioramento, which will be about 250 kilometers in length. This same line has also a branch in operation from Montevideo to Minas, a point in a northeast direction from Montevideo, distant 122 kilometers, which, in connection with some other branches, is projected to the Brazilian frontier at Jaguarão, in the extreme southeast corner of this state.

Thus three very important points on the Brazilian frontier are tapped by the railway system of Uruguay, while Brazil, up to this day, has not projected a line to a single one of these points, and has not even completed communication over the one line projected to Uruguay and upon which work was begun more than six years ago.

The commercial and strategic advantages of these Uruguayan lines need no demonstration, but can be seen at a glance; and the plan of the entire system shows sound judgment on the part of the Uruguay Government.

BANKS.

The principal banks doing business in the state are the following:

The London and Brazilian Bank (limited), head office in London, has branches in Rio Grande, Pelotas, and Porto Alegre; it has a subscribed capital of £1,250,000, of which £625,000 are paid up, and a reserve fund of £325,000.

The English Bank of Rio de Janeiro (limited), head office in London, has a branch at Porto Alegre and a subscribed capital of £1,000,000, of which £500,000 are paid up, and a reserve fund of £150,000.

The Banco do Estado do Rio Grande do Sul, at Porto Alegre, has a capital of $1,000,000, a reserve fund of $313,402.16, and the general cash movement of this bank for the year 1888 was $8,193,165.72.

The Banco do Brazil has agencies in this state; head office is in Rio de Janeiro. This bank will increase its capital and become a bank of issue, a privilege which it had formerly, but which was suspended for some reason.

The Banco Nacional contemplates the establishment of a branch in this state; the head office is in Rio de Janeiro, and it is a bank of issue. Its first notes were issued on the 5th day of last October, payable in gold, as it is provided by the general banking law of Brazil that all bank-notes issued shall be made redeemable in that coin, silver being only a legal tender for an amount not exceeding 20 milreis. This bank had a contract with the Imperial Government to take up such of its paper issues as it might wish to redeem from time to time. Its capital is $4,500,000.

A branch of the Banco de Credito Real, central office in Rio de Janeiro, will be established in a few days in this city. Its capital is $2,500,000, and the principal business of this bank will be to make loans on trust and mortgage security, while all other banks and agencies in this state confine their business to collections, discounts, and the sale of bills of exchange.

The latest published reports of three of these banks show, for the financial year 1888, that dividends of from 8 to 12 per cent. on the paid-up capital have been declared—the latter rate by the London and Brazilian (limited)—besides transferring £35,000 to its reserve fund. These figures show that banking in South America is not an unprofitable business. These profits, however, in the case of the two English banks, were made by their various branches established in every important city on the east coast of this country.

CURRENCY AND EXCHANGE.

The Brazilian Government has maintained in circulation for quite a number of years a paper currency, issued upon the credit of the General Government and not redeemable in gold. Before the war with Paraguay, as far back as 1849—and perhaps farther—foreign gold was almost exclusively in circulation in this part of Brazil, the effect of which was to keep exchange steady at 24*d.* to a milreis. For the payment of duties in the custom-house paper was bought and sold at a premium, as foreign gold would not be received in the payment of duties. The war of Brazil with Paraguay, which began late in 1864, had the effect of lowering exchange. The rate went down until, in February, 1868, it reached 15*d.* to a milreis on London, ninety days' sight.

This had a very depressing effect on business, as can be readily concluded; but, after the war closed, which was in the early part of 1869, faith and credit seemed, in a measure, restored, and the financial condition of the country improved, though exchange ruled low for some years, because of the great expense incurred by the Government in prosecuting the war against Paraguay. Speculators have occasionally taken advantage of a change of ministry to force exchange up or down, but, since October, 1887, exchange has been steadily rising until, on the 22d day of February (this year), it reached 28*d.* (gold) to a milreis (paper currency), at ninety days' sight on London, being for a milreis (paper currency) the equivalent of 56¾ cents (United States gold), when the present Treasury valuation of a milreis (gold) is only 54.6 cents. This improvement in the rate of exchange is attributed to successful loans that have been made by the Government, better financial management, and a generally prosperous condition of the country; but fluctuations do, and must, occur for the same reasons which affect exchange in any country which maintains a proportionally large volume of paper currency in circulation.

In buying a bill of exchange in this city on New York direct the rate is not so favorable as for London. For instance, the purchaser of a bill will receive £1 on London ninety days after sight, at a certain rate, for 8,750 reis,* but for the equivalent of £1 on New York, at same time (ninety days) and corresponding rate, he will be obliged to pay 8,890 reis, a difference in favor of the former of 140 reis, or 1.6 per cent. When a bill is sold on New York, the bank does not attempt to cover the transaction or remit the gold to settle the draft, but all arrangements are made through London bankers, who handle the cash. Exchange, though reaching the high rate of 28*d.* to a milreis, has maintained but a slightly lower rate since; and even now, with a complete change and reformation of government throughout the country, the rate is steady at from 27⅛*d.* to 27¼*d.*, at ninety days' sight.

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* 1,000 reis=1 milreis; 1 milreis=54.6 cents.

POPULATION AND PUBLIC DEBT.

This state, with a population of at least 1,000,000, has a debt bearing interest at the rate of 6 per cent. amounting, on the 30th day of June, 1888, to the equivalent of $1,764,512.78.

RECEIPTS AND EXPENDITURES.

Its receipts and expenditures for two and one-half years are shown by the following table:

Year.	Receipts.	Expenses.	Increase.	Decrease.
1885-'86	$1,335,538.18	$1,356,272.74		$20,734.56
1886-'87	1,643,759.36	1,564,973.24	$78,768.12	
First six months of 1888	763,340.58	808,598.84		45,258.26

The time of the ending of a fiscal year was changed in 1887 from June 30 to December 31. The fiscal year 1886-'87 includes eighteen calendar months.

The legislature of this state, in session last July, authorized the negotiation of a loan of 10,000,000 francs for the payment of the expenses of certain public works and the extinction of the present debt.

IMMIGRATION.

Immigration is a matter in which the Government of Brazil, in recent years, has taken considerable interest. A few years ago a large number of German immigrants located in this state, and to-day there are some large, and said to be prosperous, colonies, especially at São Lourenço, about 30 miles north of Pelotas, covering a large section of country and bordering on Lake Patos. From a small village on the lake shore all the surplus products of the colony are shipped in small schooners to Pelotas and Rio Grande markets.

Novo Hamburgo is in the center of another large German colony, which is connected by rail with Porto Alegre, already mentioned. In various parts of this state there are Germans and the descendants of the same people, especially in and about Porto Alegre. At this time, however, all immigration from Germany to Brazil has ceased on account of objections raised by the German Government.

Some time since the attention of the Government was directed to Italy, from which country immigrants have been coming into this state until recently. The number of immigrants of all nationalities, the greater part of which were Italians, is, for the years 1885 to 1888, inclusive, as follows:

1885	7,936
1886	3,597
1887	5,286
1888	4,935

Great objections have been raised to the system recently adopted by the Brazilian Government in the disposition of the immigrants after their arrival here, by the press of the country and those who are interested in the welfare of their countrymen. Until the latter part of the year 1888 Italian immigrants arrived here at their own expense, but about that time the Government made a large contract, by which some agents were established in several parts of Italy, who furnished free passage for all persons who wished to come to Brazil. When they arrived at Rio de Janeiro, they were forwarded by the immigration bureau to any part of the country in which they desired to locate.

The business of the immigration office is to secure agricultural labor, and no assistance or advice is given to those who wish to follow any other occupation. All expenses are paid until they arrive at the lands where they are to be located, these lands being divided into squares of 30 hectares each, or about 75 acres, and sold to any colonist who wishes to purchase on five years' time. In case of default of payment at the expiration of five years, a certain percentage is added to the original cost price; but, should payment in full be made, a fee-simple title is given the purchaser.

When possession is taken of any of these lands by the colonists, they each receive some agricultural implements and a sum of money to aid in building a house. During several months waiting for the first crop they are frequently employed in the general work of the colony.

The principal objections raised are that the lands are situated at a great distance from transportation and markets; that all advantages that might be desired, in a money point of view, from these lands are defeated, because of the valuelessness of their products and the enormous freight rates to reach a market. These lands belong to the state, and the most available lands for agricultural or grazing purposes have long since been in the hands of private owners, who do nothing with them. The Government has no well-located lands to furnish immigrants, who are almost all agriculturists. The construction of roads and ways of reaching easily these colonies is entirely neglected, and it appears that the main object is more to locate a great number of immigrants than to place them in a condition to prosper. If the immigrants arrive in limited numbers, they will find lands already laid out in squares; but, as they are situated in such inaccessible places, many can not endure the privation and leave the country before undertaking any work.

On the 2d day of April last a sensation was created by about seven hundred Italian immigrants in Porto Alegre, who were sent back to Italy. These people had all arrived at one time, a few days before they started on their return, at a time, too, when the state of Rio Grande was thronged with laborers looking in vain for work. The want of employment in the cities and colonies and the yellow fever and other diseases among them worked their complete demoralization, and the Brazilian Government, on the claims presented by the Italian authorities, readily returned them to Italy, paying the expenses, but proposing to be indemnified by the agents or contractors who had procured these immigrants. It is further objected that official immigration is misleading to the immigrant and injurious to the country. The agents in Europe, who receive a stipulated sum for each immigrant, may be unscrupulous enough to make many false representations, and thus secure a class of people who, upon arrival, at once become dissatisfied, and are no advantage to the country. This country, while very large, is scarcely improved enough, especially in railways, to sustain a large immigration; and many come who, by their infirmities of years and physical defects, can be nothing more nor less than a burden to the country. By the present system the Government loses immense sums of money, and has not gained in this kind of immigration in proportion to its expense.

The number of Italians arriving in the first three months of 1889 in this state was at least ten thousand; but, about the first of April last, the Italian Government prevented the departure of any more Italians as emigrants to Brazil. During these three months not less than three thousand Italian immigrants returned to Italy from this state and crossed into the neighboring republics of Argentine and Uruguay. So general was this exodus that it became a matter of Brazilian newspaper comment, as there appeared an article in the Gazeta Mercantil, a Rio Grande daily, on the 10th of March last, charging that those who had immigration in hand had, by their management, turned the service into emigration; that immigrants who had been brought to this country at the expense of the Government were moving across the frontier into the neighboring republics, where they were received with open arms; and, if things continued in that way long, Brazil was spending large sums of money for the exclusive benefit of Uruguay and Argentine. Immigration has almost ceased to this state; in fact, there has been but little for the past six months.

SYSTEM OF TAXATION.

Taxes in this country are what might generally be termed indirect. Much of the produce of the country, when exported, pays an export tax, which, of course, is indirectly paid by the producer. All hides, hair, wool, etc., pay into the state custom-house a duty of 12.5 per cent. of declared value on hides and 4 per cent. on some other articles. This tax is levied for the purpose of raising revenue to defray the expenses of state government. A tax of about 11 cents must be paid on each head of cattle killed at the *xarqueadas*, which is levied by the authorities of the municipality in which the *xarqueada* is situated, and is for the support of local or municipal government. An annual tax is levied on professions, both by the state and General Government. All kinds of business, including buying, selling, or manufacturing, in which it is necessary to keep open an office, shop, store or establishment, pay an annual license tax to the collector of state customs, or revenue. Furniture, lands, and houses are not taxed, but in each municipal district house owners are taxed a certain percentage of the estimated rental value of the houses owned; in this district the tax is 10 per cent. of the estimated annual rental value of the house.

In regard to real estate, the provisions of law are about as follows:

A real property, purchased of the Government, pays no tax of any kind on this first transfer. In cases of sale, exchange, or donation, it pays, first, in case of sale, 6 per cent. into the general treasury and 1 per cent. into the state treasury, of the consideration of the sale. In case of exchange, when one value exceeds the other, payment of the same rate and in the same manner is required on the excess as in a case of sale; if, however, the values are equal, then one-tenth of 1 per cent. of one of the values is to be paid proportionally into the general and state treasuries. In case of donation among heirs, the same rates are to be paid and in the same manner on the value of the property as in a case of sale. In case of a donation on a contingency, such as the death of some person, the same rates and in the same manner are required to be paid as in case of sale, with an addition of 100 per cent. to the estimated value of the property, after which the person acquiring same takes possession. In case of an acquisition on the condition of the payment of an annual rent, the same rates are required to be paid and in the same manner as in case of sale, on the estimated value of the property, and the additional sum of 2½ per cent. on the annual rent, which is fixed at the rate of 40 reis (about 2 cents) for each 4.84 square meters of land.

Acquisitions for the purpose of colonization pay no taxes whatever, and are subject to the same provisions as though the Government had sold them for individual uses.

INDUSTRIES.

Cotton and woolen mills.—The industries of this state worthy of note may be summed up briefly. The principal one in the manufacturing line is the cotton and woolen factory of Rhiengantz & Co., in this city. It is operated by a joint-stock association, with a paid-up capital of $500,000, and has been very successful, not only in the quality of unbleached cottons and woolen blankets, shawls, cloths, and cassimeres it turns out, but this year declared a dividend of 12 per cent. for the share-holders, besides setting aside 1.5 per cent. in the reserve fund, which now amounts to $35,000. This factory employs over five hundred operatives at this time, and its productions reflect much credit on the establishment, many of them being equal in appearance to imported goods; and the woolen cloths are from 30 to 50 per cent. cheaper than foreign importation. The output of this factory is finding market in almost every good section of Brazil; already it has established a good trade in Rio de Janeiro and Pernambuco. Its cotton manufactures range all the way from 150 to 400 grams in weight per meter, according to the width and the purpose for which the goods are made. The price and weight of a standard brand has been given in a former part of this report. Recently the prices of cotton goods were lowered by this company on account of the abatement of the duties on cottons in the special tariff for this state, and the manager, in his recent annual report to the share-holders, speaks very plainly on the subject of special tariff and its effect on the interests of the company. He charges that, contrary to his expectations, based upon the declaration of a former *ministro do fazendo* that the special tariff would not be allowed to interfere with the fabrics of these mills, the minister had evidently acceded to the wishes of the commercial associations of Pelotas and Porto Alegre and ignored the manufacturing interests of Rio Grande. The existence of this special low tariff, so far as it relates to these goods manufactured here, he says, will prove financially disastrous to the industries of Rio Grande, and thus impoverish, to a certain extent, the state; and that, although the special tariff was the result of a quasi general demand by the commercial importers of this state and had become, as it were, a magic word, men of apparently the most intelligence seemed to ignore the value of an industry which furnished employment for a large number of people who had no knowledge of agriculture and were not adapted to that kind of labor.

The total value of woolen goods manufactured last year in this factory was $297,847; of cotton goods, $155,750. This is a small decline in the cotton output, caused by a loss of time in moving the machinery of the cotton-mill from an old building into a new one.

The special tariff reduced the duty on many fabrics—same as made in this factory—from 30 to 50 per cent. The wool used is all produced in this state, is of three grades, and will average in price the equivalent of 15 cents per kilogram, or near 6.8 cents per pound; and the annual consumption is about 1,014,628 pounds unwashed. The cotton comes from the north, principally Pernambuco, a distance of 1,848 miles, and costs about 11 cents per pound.

Cattle breeding.—There is another industry, however, which is a very important one to the people of this state, and, should it decline or fail suddenly, the result would be a general crash in all kinds of business, for it is the life of all commercial movements. I refer to cattle breeding. This state, it may be said, is devoted to the grazing of cattle, and it is estimated that for local consumption and the supply of *xarque*, or dried beef, which is mostly exported to the north, there are one million head of cattle slaughtered annually, representing an income to the breeders of about $10,000,000. There are a number of *xarqueadas* in this state, but the principal ones are at Pelotas, 30 miles from this city.

To show the number of cattle killed there for the last four years, I have prepared the following table:

Month.	1885-'86.	1886-'87.	1887-'88.	1888-'89.
November	....	1,216	....	2,441
December	6,974	27,411	18,009	43,380
January	32,227	32,266	36,608	33,299
February	58,558	60,866	43,334	44,045
March	60,126	71,655	53,596	59,835
April	41,985	75,760	60,531	46,416
May	43,217	59,938	65,609	66,885
June	20,983	27,730	560	12,207
July	....	....	....	200
Total	264,070	356,842	278,247	305,708

At the *xarqueada* Paredao, in the eastern central part of the province, about twenty-seven thousand head of cattle are killed annually, and at Quarahy, on the extreme western frontier, as many as forty-three thousand five hundred and ten are reported—exact number not known.

SPECIAL TARIFF AND CONTRABAND.

A special tariff for this state went into effect on the 15th day of March last, lowering the duties from 25 to 50 per cent. on many articles, especially those which had been introduced as contraband over the western frontier. This special tariff makes a reduction in the rate of duty on one hundred and seventy-seven different numbers in the entire tariff schedule, which includes eleven hundred and four numbers. The numbers so changed cover about four hundred different articles, the most important of which are cotton, woolen, and silk goods; also, articles of linen, jute, paper, ivory, mother-of-pearl, wood, cutlery, iron, steel, lead, tin, zinc, etc.; and, having forwarded to the Department a translation of the special tariff, I deem it unnecessary in this report to occupy space with comparative tables, showing on what principal articles reductions, and the amount of the same, were made.

The sliding-scale of duties on foreign imports competing with Brazilian manufacture, decreed by the Government March 1 last, did not go into effect, and was not intended to be applied, in this state.

The special tariff was prepared at the urgent request of the commercial associations of Porto Alegre, Pelotas, and Rio Grande, and was thought to be the only remedy for the prevention of the large contraband trade which was carried on over the western frontier. It remains yet, to a certain extent, to be determined whether it will extinguish contraband or not, although nine months have elapsed since it went into effect.

Contraband trade then on the western border was open, gross, and notorious, and flourished to such an extent eighteen months ago that legitimate importations greatly declined and business became paralyzed in this part of the state. The question now presents itself, notwithstanding the special tariff, whether or not the ports of the east have sustained loss in their commercial importance by the establishment of ways and the opening of business channels in the west, though contraband, that will now remain permanent in the conduct of legitimate trade for the supply of that part of the country. If the press of this state can be relied on, the contraband trade is not yet extinguished. In the Gazeta Mercantil, of this city, an extract from a private letter was published on the 2d of June (present year), the purport of which was that contraband, despite the special tariff, was carried on in a most scandalous manner, and the tariff had, apparently, a negative effect.

Senhor Conselheiro João Alfred Corrêa de Oliveira, then *ministro do fazendo*, made a report to the legislative body of the country assembled at the beginning of this year, in which he said that the only way to successfully combat the traffic was to ask the intervention of the adjoining republics in the interests of reciprocity and all the conditions of the transportation of merchandise by river from the Rio Prata countries.

In the Diario do Rio Grande of May 18 last an article was published describing the gross contraband that was carried on at Santa Anna do Liotamento, a Brazilian town on the Uruguay frontier, a part of which is quite close, if not on the boundary line—a place with splendid facilities for contraband business. The manner charged by the Diario in which much of this business was done seems to confirm the declaration of a former cabinet minister, who said officially, when referring to the subject of contraband, that one of the great difficulties in the way of suppressing the traffic was the lack of vigilance and dishonesty of police and fiscal authorities on the frontier. By day and by night, says the Diario, merchandise was moved across the frontier into Brazil as contraband, the guards and police taking an active part in assisting, for which they received compensation, more or less, according to rank. On one occasion the commander of the guards received a conto of reis (about $500), of which he kept $125 and divided the balance among the guards. At another time the *delegado* of police and the commander received $500 for facilitating the crossing of some goods, about the division of which there was some difficulty. The *delegado*, as first authority, desired to retain 500 milreis, to which the commander objected, and demanded an equal division, which, in the interest of peace and the business, was accordingly done.

Montevideo has advantages as a port which are inducements to enter goods into this state by the western frontier. Goods may remain in any custom-house of Uruguay for one month free from store rent, and, even after the expiration of one month, the charge is so small that many merchants of Montevideo use the custom-house stores as places of deposit suiting their convenience, instead of having extensive warehouses of their own. In Brazil store rent must be paid for one month if goods are dispatched within one hour after they enter the custom-house; and, should they remain longer than one month, the rate of store rent increases in such a ratio that the tariff and store rent at the end of a few months will be equal to the value of many kinds of goods. Consequently, some goods sent on consignment are abandoned in the custom-house.

CONTRABAND AND FREIGHT RATES.

The profits of successful contrabanding are great; not only is the payment of duty and store rent avoided, but there is a saving in freight rates. Ocean freights from Hamburg or Liverpool to Rio Grande are as high as 60*s.* per ton (the railway company here paid that price for a ton of coal a short time since), while the rates from the same points to Montevideo are about 40*s.* per ton, and for some goods less—as, for instance, iron fencing wire, which is being very extensively used in this country, is carried for as low a rate as 20*s.* per ton. From New York the rates are cheaper for Montevideo than for Rio Grande do Sul by 2 cents per cubic foot for measurement goods and 5 cents per cwt. for weight goods. The port charges at Montevideo are much less than those of this port, as a sailing vessel of 225 tons register could enter and clear the port of Montevideo for from $150 to $200, while it would cost from $400 to $450 at Rio Grande; besides, the former port has the advantage of admitting very large vessels, and is an important commercial point.

From Montevideo to Salto, on the Uruguay River, by steamer, freight is $4 per ton; on account of rapids in the river near this place goods for Brazil are generally transshipped on the Western Uruguay Railway. Belem, on this railway, is a distance of 120 kilometers from São João Baptiste, a Belgian town, close to the boundary line. Frequently goods go direct from Salto to Santa Anna do Lioramento, a distance of 225 kilometers, in carts—the means of transportation of the country—after leaving steamers or railways. Taking it for granted that the expense of transportation of goods by carts from railways to interior towns in Uruguay is more or less the same as in this state from Bagé to interior points, I estimate the average freight rate at 24 cents per English mile for each ton of freight.

The freight rates of the Western Uruguay Railway I can only approximate at the time by comparison with those of the Central del Uruguay from Montevideo to Rio Negro, on which road the rates are about as follows: Freight of the first-class, 4 cents per kilometer for 100 kilograms; second-class, 3⅓ cents per 1,000 kilograms. The cost of transportation of goods in ordinary bales or well-packed boxes, which would bring them more or less under second-class rates, from Salto to Belem would be $2.17 per ton of 2,240 pounds, and for Quarahim, on the Brazilian frontier, $4.34 per ton. Then, for the sum of 40*s.* ($9.70), plus the river and railway freight, goods can be placed on the western frontier of this state by way of Montevideo from Hamburg or Liverpool for $18.04 per ton.

From Hamburg or Liverpool freight will cost not less than $12 per ton to Rio Grande. Before 1 pound of it can be forwarded to the interior it must be properly entered in the custom-house, duty and storage for one month paid, and a *guia,* or custom-house permit, obtained, before one package will be received for transportation by the railway running into the interior from this city. The rates on this road for freight, first and second class, are about as follows: For first-class, which includes only passengers' baggage and small parcels of value, the rate is about 11 cents per kilometer for each 100 kilograms; taking an average of second and third class rates, according to its freight classification, which would include certain merchandise, such as manufactures of wool, cotton, and silk and cloths of almost every kind, the cost is 6 cents per kilometer for each 1,000 kilograms; making a total cost per ton from Rio Grande to Bagé of $16.98, plus freight from Hamburg or Liverpool ($12), which makes a total of $28.98 per ton of 2,240 pounds. When goods have arrived at Bagé, if intended to supply such places as Santa Anna do Lioramento, they must be carted across the country a distance of 88 miles at a cost of $21.12 per ton, making a total cost of $50.10 per ton delivered to a merchant in this town by way of the port of Rio Graude, against $47.30 by way of Montevideo and Salto.

These figures show a somewhat cheaper freight, besides the excellent opportunities there are to cross into Brazil and avoid the payment of any duty. Contraband has been engaged in by people along the frontier for some years, and the only time that it ever received any thing approaching a complete check was the time of the existence of cholera in the Rio Plata cities. On the 6th day of November, 1886, all the ports of Brazil were declared closed against those of the Rio Plata on account of cholera, and a strict *cordão sanitario*, or sanitary guard, was established all along the frontier to prevent—by shooting, if necessary—any persons crossing from the Uruguay side into Brazil. Cholera and muskets had a very disastrous effect on the contraband trade for five months, when the quarantine was raised and the *cordão* removed; and, as proof of this statement, the receipts of the custom-house in this city were greater for the years 1886 and 1887 than for any year since 1880, as shown by the following table:

Customs receipts for the years 1879–'88, inclusive.

Year.	Receipts.	Year.	Receipts.
1879	$1,423,940.00	1884	$1,096,729.48
1880	1,385,467.11	1885	1,132,313.57
1881	1,122,173.93	1886	1,356,309.61
1882	1,129,863.78	1887	1,362,810.02
1883	1,166,938.76	1888	1,052,826.46

In 1888 this illicit trade had revived to an alarming extent, and it appears to have been facilitated by officials in the custom-house at Uruguayana. The Folhada Tarde, a bi-weekly newspaper of Porto Alegre, published a series of articles in the early part of that year under the title of "Contrabando Official," or "Official Contraband," exposing a state of affairs as existing at the time, if true, in the custom-house at Uruguayana of great corruption and prostitution of trust on the part of officials. These articles attracted the attention of commercial men throughout the country, and have since been arranged and published in pamphlet form and scattered all over the state.

ESTABLISHMENT OF TRADE.

The present condition of trade between the United States and Brazil has been a subject of comment by the press of our country for some time, and various means are suggested by which it can be improved and sales in the southern countries increased. Exporters and manufacturers complain that sufficient interest is not manifested officially in the promotion of trade relations; consequently, American productions are not introduced as they should be, and our manufacturers have not always a fair opportunity to compete in the various markets of the south with the productions of European mills and factories.

I can not speak from experience for any other section of country save this, but apprehend, as a matter of fact, that the same barriers rule produce more or less to the same effect, whether they be applied in transactions of trade in South America or elsewhere.

On this point I beg to quote an extract from a New York journal of August 5, 1889, under the head of "South American Credits," as very applicable to the condition of commercial affairs in this state:

SOUTH AMERICAN CREDITS.

One of the reasons why the American merchants do not do so large a volume of trade with South America as English and Germans is because we are more conservative in the extension of credits. When the South Americans themselves learn that all their markets would be healthier and continuously in a stronger position if they were not themselves applicants for long credits on the smallest possible margins, the greater the inducement will be for Americans, who can always find fairly good use for their money at home, to put it out in these foreign countries. Germans and English, who have to find use and investment for more money than we, of course take longer risks.

A great number, if not a majority, of the importing houses of this state are German, and the terms upon which Hamburg exporters sell goods to their customers in this state are about as follows: The length of time given by an exporter is generally ten months; in purchasing direct from the manufacturer, six months. All accounts are dated on the first day of the month following the one in which the purchase is made, if purchase is made before the 15th of the month; but, should the purchase be made after the 15th of the month, then the account is dated on the first day of the second month following the one in which the purchase was made. This system may add forty-five days to the ten months' credit given from the date of the account. To cover the amount of an itemized statement of account, the purchaser executes a negotiable note for the length of time the account has to run, which the exporter indorses to his bank and is advanced 75 per cent. of its face value in cash, after which, when due, the bank sends the note to a bank in this state for collection. In many instances the manufacturers take the merchants' acceptances for six months and discount them in bank, using the cash for the purchase of new material. This long credit of ten months gives the importer here time to secure returns in the products of the country, which, practically, are in the market but a few months each year. This system, I undertake to state, is not followed so much because the Germans prefer it to a shorter time, but the people—the Brazilians and others to whom they sell—demand long credits; it is a rule of the country, long since established, from which there has been little or no departure. How long a time might be required to break this system no one knows; and, as credit seems to be asked for and accepted when given by many business people in all parts of these southern countries, it is not strange, then, that the Brazilian should be no exception to the rule. A more conservative system, I have no doubt, would be better for the people and avoid much loss by failures among merchants, but those who have secured a lead in trade here have adopted a system that conforms to the demands of their customers.

Catalogues for circulation or distribution in this country should be of convenient book size and printed in the language of the country (Portuguese); the sending of catalogues to this country of inconvenient book size, printed in English, without price of articles and trade discount, is a waste of money. The price and discount is very important, and certainly there could be no good objection to the giving of prices in fair business competition.

When we look at the agencies of European manufacturers established all over this country, is it reasonable to expect any other result than that they should sell the greater part of the goods consumed by these people? Right here on the soil is the German, British, Portuguese, French, and Italian merchant, each pushing the products of his own country in the markets with all his skill and ability, while there is not a single American merchant in this state, which is larger than the New England and Middle States combined. The way to establish trade for American products is for Americans to come here and open houses and show the people what they have and how they can sell to them. This trade demands men of experience and good business capacity besides familiarity with languages.

With the establishment of a few business houses there should be some banks or bank agencies. These are also very necessary to increase trade relations, enabling merchants to buy bills on the United States direct on better terms than it is possible to buy them now through the branches of European banks. Some trade theories are very good, no doubt, and look well on paper, but my observation has led me to conclude that the best results come from practical efforts; and whenever our shrewd business men and manufacturers fail to successfully compete with our friends in Europe through properly supplied and well-managed houses in this country, then it will be time to complain. At present the field is not occupied by any one who is particularly interested in pushing American goods, and, as a result, our trade, except in the two articles of flour and kerosene, is comparatively small.

LEBBEUS G. BENNINGTON,
Consul.

UNITED STATES CONSULATE,
Rio Grande do Sul, December 20, 1889.
No. 121——3.

PUBLIC LIBRARIES IN GREAT BRITAIN.

REPORT BY CONSUL BRUCE, OF LEITH.

About sixty years ago, on the granting of a fuller franchise to British subjects, Robert Peel exclaimed in the House of Commons: "We must now educate the masses, our masters." This sentence anticipated the need and function of libraries for the people, and about the year 1835 mechanics' institutes were established in many cities and towns of the realm, which accomplished much good in opening up new avenues to broader and higher culture. The masses, however, soon demanded freer opportunity for study and reading than that obtained by the fee of an annual membership, which practically closed the door except to the few, and in 1845 Mr. William Ewart, a member of Parliament representing the Dumfries borough of Scotland, championed their cause and succeeded in passing an "act for the establishment of museums and libraries connected with them," under which act several small libraries were founded in England, notably in Warrington, Canterbury, and Salford.

In 1849 further progress was made, and a select committee of fifteen was appointed by the House of Commons to inquire into the state of public libraries in Great Britain and Ireland. The investigation of this committee, which included among its members Mr. Disraeli, Mr. Moncton Milnes, and Mr. Ewart, showed clearly that Great Britain, in the matter of libraries, was far behind other European nations, the United States, and some of the British colonies. The practical result of their labor was the free library act of 1850, which made provision for the establishment of libraries, museums, and public galleries in boroughs of not less than 10,000 inhabitants. Its operation was limited to English boroughs, and, in organizing the same, a majority of two-thirds of the rate-payers was required, the rate being limited to half a penny in the pound rental (1 cent to $4.86). In 1854 the act was extended to include Scotland and Ireland, and it was further amended in 1866 and 1877 to towns with populations of 5,000, secured by a simple majority of the rate-payers, with maximum rate of 1 penny to the pound rental (2 cents to $4.86), a rate yielding in Edinburgh about $35,000 annually.

The first to take advantage of this act was Manchester, in 1855, then only a borough, and among those who took part in the ceremony at the inauguration were Charles Dickens, Thackeray, Bulwer Lytton, and Lord Shaftesbury. Liverpool soon followed the example of Manchester, and thereafter Birmingham, Nottingham, Leeds, and other cities. With the exception of Airdrie, in 1856, the movement did not make progress in Scotland until 1869.

In 1879 the number of towns in Great Britain which had adopted the act was eighty-four, and since 1879 there has been an average of ten a year, making the total number at present about one hundred and ninety; and it is a significant fact that fully one-half of the free libraries in England are situated in the northern and midland counties, at the chief centers of English industry.

The following table gives a complete list of cities and boroughs in Scotland which, to July 1, 1890, have adopted the free library act; also the dates of establishment and the number of volumes now catalogued:

Towns.	Year opened.	Number of volumes.
Airdrie	1856	7,000
Dundee	1869	46,399
Forfar	1870	5,464
Paisley	1871	20,300
Galashiels	1874	5,800
Thurso	1875	3,045
Hawick	1879	8,800
Dumbarton	1881	2,700
Dunfermline	1883	12,272
Inverness	1883	6,692
Huntly	1885	....
Edinburgh	1890	59,000

As early as 1868 the adoption of the free library act was submitted to Edinburgh, but the proposal was defeated. In February, 1881, it was again submitted and only 8,000 votes cast in its favor, over 15,000 voting against it, the rest of the 41,853 rate-payers not responding at the election.

Edinburgh was not alone in this rejection. In 1876 Glasgow also declined the adoption of the act, only one-third of the recorded votes favoring it. In May, 1885, a plebiscite was taken, and it was again defeated, the vote being 22,755 in the affirmative and 29,946 in the negative. In the summer or fall of 1886 Mr. Andrew Carnegie, of Pittsburgh, who in 1885 presented a library building to his native town of Dunfermline, offered $125,000 for the erection of a public library building in Edinburgh, provided the city would adopt the free library act, which it had twice declined, and this offer was increased by a telegram in May, 1887, from Mr. Carnegie to Sir Thomas Clark, then lord provost of Edinburgh, to $250,000. As the Earl of Rosebery wittily remarked in his able and eloquent dedicatory address—

> On two former occasions Edinburgh had been led forward to make the fatal leap into the system of free libraries, and twice Edinburgh had shrunk back. But on this third occasion Mr. Carnegie came forward and applied an argument so powerful, so weighty, so direct, so clear from the heart to the heart that it overcame all the reluctance of our ancient city.

Having accepted the gift, the corporation, under Sir Thomas Clark, set about giving effect to it. In the competition for designs several were submitted, and Mr. Washington Brown was selected as architect. It is not praising the results of his work beyond merit to say that the building combines architectural grace and elegance without sacrifice of utility. The foundation-stone was laid July 9, 1887, and the building publicly opened June 9, 1890, by the Earl of Rosebery.

In introducing Lord Rosebery on this occasion, Lord Provost Boyd made appropriate reference to the spot which had been selected. He trusted that "the library which now occupies the site of the house of Sir Thomas Hope, king's advocate to Charles I, might, like that family, grow in strength and importance and prove a blessing to the public." The following telegram was then read:

> We congratulate you upon the opening of the free public library. It is especially gratifying to us that Lord Rosebery is to perform the ceremony, as he did for that of Dunfermline. We trust this library is to grow in usefulness year after year and prove one of the most potent agencies for the good of the people of Edinburgh for all time to come.

It was signed by Mr. and Mrs. Andrew Carnegie. Amidst loud applause the key, inclosed in a casket made from the wood of the Hope house, was then handed by the lord provost to the Earl of Rosebery. The address was worthy the occasion and the speaker. A few paragraphs will show its comprehensiveness and felicity. Lord Rosebery remarked:

> The right person to open this library is Mr. Carnegie himself, but Mr. Carnegie appears to think that a division of labor is the proper course, and that whereas he is always giving libraries I am always opening them. Already I have opened one that he has given in Dunfermline, and to-day it is my privilege to open this much larger one that he has given to the capital of the country of his birth.

After referring to the several libraries in Edinburgh near at hand and the writers and publishers who had made this city for so many years a great literary center, he said:

> Edinburgh without a free library of this kind was like men starving in the midst of a granary, and we owe all honor to Mr. Carnegie for his timely gift; also to our committee, who have worked hard and have a good record of work to show. They have spent $60,000 in books, and they have got together some fifty-nine thousand volumes. We feel, in seeing these books in use, *morituri, morituros, salutanos.* We perishable men salute you, perishable books, because we know that, unlike us, you can not pass away naturally without leaving the effects of your work behind you. And what a work that is! What would Burns have given, what would Hugh Miller have given, what might they both have been had they had access from their birth to such a free library as this? Your founder has had the august words placed over the door, "Let there be light." The sublime hymn that we sung at the commencement of the proceedings, "Lead, Kindly Light," touched the same note. The builders of Jerusalem raised their city with the trowel in one hand and the sword in the other. Let us, the masses who raise our social structure, endeavor to seek even a higher ideal, and work with the trowel in the one hand and the book in the other; for work without knowledge is only a tread-mill, but work guided by knowledge is the Archimedean lever which shall move the world.

After other addresses and votes of thanks the platform party took their way up stairs to the lending library, where, amid cordial applause, Lord Rosebery unlocked the outer door and declared the library free to the citizens.

The opening ceremony took place in the general reading-room of newspapers and periodicals, which is the third story of the building from the street known as "Cowgate." Above this is the lending library on a level with the main entrance—in fact, the only entrance in use—on the street known as "George IV Bridge," and above this is the reference department, each room occuping the complete floor. One of the peculiarities of old Edinburgh is here illustrated in entering the library from the street on the fourth story, the street below being intersected and crossed at a high level.

The reader has therefore but one flight of stairs to reach the reference library, and only one flight to reach the periodical and news department. The ground-floor of the building on Cowgate side is used for heating and electric lighting apparatus and the second floor, viz, the one beneath the news-room, is used at present for store-rooms and binders' rooms for repairing and covering the books. The news-room, the binding department, and the reference room are, respectively, about 95 feet long by 75 feet wide, containing about 5,600 square feet each. They are lofty, airy, well ventilated, and well lighted by electricity, which is considered preferable to gas, not only in quantity and quality, but also better as to ventilation and without the injury to the bindings of the books which is caused by the use of gas. The 58,000 volumes to which Lord Rosebery referred are divided as follows: Thirty-four thousand in the lending department, 5,000 in the juvenile department, and 19,000 in the reference department. The lending department is open from 9 a. m. to 9 p. m., the reference department from 10 a. m. to 10 p. m., and the juvenile department from 3 p. m. to 8 p. m.

As to the selection and purchase of the books, Professor Masson, of the Edinburgh University, as chairman of the book committee, and Mr. John Grant, with his practical knowledge of books, both received words of merited praise for the effective and thorough manner in which they had discharged their duties.

The indicator system is worthy of mention as a simple labor-saving device to indicate whether the book is in or out of the library. There are ten of these, each about 6 feet square, placed at about equal distances on the horse-shoe shaped desk, or counter. Each contains 4,000 numbers, to wit, 1 to 4,000, 4,001 to 8,000, etc., and each number has a little drawer just large enough to hold a small card. One end of the drawer is red, and the other blue. If the red end is placed outward in the numbered slide, the book corresponding with this number is not in the library, and the card of the person who has the book will be found in the drawer. When the book is brought back, the blue end of the drawer is presented outward and the card returned to the person who returns the book. This system saves time, labor, and expense, and would be of service to libraries of even five thousand volumes. It shows at once to the person who wishes the book whether it is available or not. In brief, the entire model and plan of the building and its conveniences are well worth the attention of the directors of similar institutions on both sides of the Atlantic.

It is interesting to thus trace the development and history of the free library in Great Britain evolving from feudalism. The University Library, founded in 1580 by a bequest of 300 volumes "to the kirk of our God and the city of Edinburgh" by one Clement Little, advocate, now numbers 150,000 volumes. The Advocate Library, founded in 1682, contains 200,000 volumes. Both are venerable with age and rich in all that the scholar and student desire, generous, also, to those who rightly apply for their favors and come properly introduced and commended. Still, these granaries of harvested centuries are not free to the toilers and the bread winners, and it is a singular fact that the cities which have been the most richly blessed in this regard have been the last to feel the need of libraries with open doors for the masses.

A brief table shows that Edinburgh ranks high among European cities and university towns in the number and completeness of her libraries:

	Volumes.
Advocates' Library	200,000
University Library	150,000
The Signets' Library	60,000
The Solicitors' Library	40,000
The Free Church Library	40,000
The United Presbyterian Church Library	31,000

In addition to these are the Edinburgh Literary Institute, the Philosophical Library, the Mechanics' Library, and various nondescript circulating libraries; but the crowded rooms of the new library show that there was a real need on the part of the people for the freer advantages which they now enjoy. During the first week it was opened 6,440 volumes were given out, and in the second week the figures rose to 12,241—a number which, probably, has not been approached in any similar institution. As to the visitors to the news-room, it was pointed out that during the first week the daily average attendance was 191, and the second week 192. If the visit of each person were put down at twenty minutes each, this would give a daily aggregate of 6,786.

The following are the statistics of the lending department of the library for the week ending July 26, together with the issues of the preceding weeks:

Description.	Week ending—			
	July 5.	July 12.	July 19.	July 26.
Religion	181	358	480	463
Philosophy	44	76	78	87
Sociology	118	245	310	284
Science and art	624	1,210	1,494	1,398
Poetry and the drama	132	285	345	331
Fiction	2,485	5,215	6,185	6,271
History, biography, and travel	705	1,419	1,662	1,546
General literature	647	1,369	1,788	1,684
Total	4,936	10,177	12,342	12,064
Average daily issue	987	1,696	2,057	2,010

Speaking of the advantages which a free library like this confers upon the working classes, Charles Dickens said, at the opening of the Manchester Free Library:

> I should have rejoiced to have seen in this place instead of myself, and to have heard in this place instead of my own voice, the voice of a working-man in Manchester, to tell the promoters of this spirited enterprise with what feelings he and his companions regard their just and generous recognition here. I should have rejoiced to hear from such a man, in the solid and nervous language in which I have often heard such men give utterance to the feel-

ings of their breasts, how he knew that the books stored here for his behoof will cheer him through many of the struggles and toils of this life and raise him in his self-respect; will teach him that capital and labor are not opposed, but are mutually supporting; will enable him to tread down blinding prejudice and corrupt misrepresentations, and every thing but truth into the dust. I have long been in my sphere a zealous advocate for the diffusion of knowledge among all classes and conditions of men, because I do believe, with all the strength and might with which I am capable of believing any thing, that the more a man knows the more humbly and with a more faithful spirit he comes back to the fountain of all knowledge and takes to his heart the great sacred precept, "On earth peace, good-will towards men."

I take pleasure in quoting from an address recently delivered by Mr. Hew Morrison, librarian of the Edinburgh Public Library, to whom I have been indebted for many acts of courtesy in the preparation of this report, and in thanking him for generously furnishing me with many facts which I could not otherwise have readily obtained.

It is our duty to accord to Mr. Andrew Carnegie not only our grateful thanks, but the honor to which so noble a gift and so patriotic an action entitle him. Mr. Carnegie, in assisting to establish public libraries, is doing a noble work—a work for which those who occupy our places in the years to come will feel more truly thankful than we can possibly do.

WALLACE BRUCE,
Consul.

UNITED STATES CONSULATE,
Leith, September 4, 1890.

RAILROADS IN ECUADOR.

REPORT BY CONSUL-GENERAL SORSBY, OF GUAYAQUIL.

I have to report that the local telegraph announces the passage by the second extraordinary session of the Ecuadorian Congress of two important railroad measures. The first is a grant to the Southern Railway Company to build and operate a line from Guayaquil to Riobamba, in length about 240 kilometers, about 60 kilometers of which are now completely built and in operation.

The Government guaranties 7 per cent. interest per annum for thirty-three years on $10,000,000, the road to be built and equipped within five years, and the entire property to revert to the Government at the expiration of fifty years.

Having reached Riobamba, it will have crossed the three ranges of the Andes Mountains lying between Guayaquil and Quito, and its completion to Quito, as is expected, will be a matter of short duration and small cost. This road, when built, will be the "Denver and Rio Grande" of Ecuador, if not of South America; but it will traverse some of the most fertile valleys of the country.

The Central Railway, the second measure, is a line to connect Quito, the capital, with Bahia, on the coast.

Bahia is the second port in importance in the Republic. The total distance from Bahia to Quito over the proposed route is 300 kilometers. The work and cost of construction, it is said, will be much lighter and cheaper than that of the Southern. The Government guaranties 6 per cent. interest per annum on $35,000 per kilometer for 200 kilometers, and 6 per cent. interest per annum on $58,000 per kilometer for 100 kilometers, for fifty years. The entire property is to revert to the Government at the expiration of seventy-five years. The Central line will pass through a section of country but sparsely populated, near Quito and Bahia, but the soil is said to be wonderfully rich and productive wherever cultivated.

This road will cross but one range of mountains, the country for 200 kilometers out from Bahia being level.

WILLIAM B. SORSBY,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Guayaquil, August 30, 1890.

SAVINGS-BANK SYSTEM OF GENEVA.

REPORT BY CONSUL HEMMICK.

The savings-banks here, the principal one being the Caisse d'Epargne, receive deposits as small as 1 franc (19.3 cents).

The Caisse d'Epargne has eight branches in the canton.

The depositor receives a bank-book on making his first deposit, the same as in most American banks. The rate of interest allowed is fixed each year by the administrator, and varies. Last year it was 3.75 per cent. To withdraw money from the bank the depositor must give three months' notice, after which time he must present himself at the bank with his book to have the amount entered and sign a receipt for the same.

The savings-banks of Geneva discount commercial paper, buy bonds, and lend money on mortgages.

The Caisse d'Epargne is not a stock company. It was started in 1816 as a help to the poor man, in a small way, by a wealthy gentleman with a small capital. There is a board of administration, who are appointed by the Government to attend to the bank and who get no salary. Depositors get the benefit of all profits, and the object is to make the surplus fund the guaranty, which is the only guaranty the depositors have. The surplus fund now amounts to 2,000,000 francs. No tokens are given to the depositor, and their names are not published periodically.

The commercial banks of Geneva, as a rule, allow 2 per cent. interest on current accounts and charge on the collection of all checks and drafts.

The banking hours for commercial and savings-banks are from 9 a. m. to 5 p. m., with the exception of the time from 12 o'clock midday to 2 p. m., when they close for dinner.

The penny school savings system is not in operation in this district.

ROLAND J. HEMMICK,
Consul.

UNITED STATES CONSULATE,
Geneva, September 1, 1890.

COMMERCE AND INDUSTRIES OF BARBADOES.

REPORT BY CONSUL DIMMICK.

The past year has been a good one for Barbadoes, the crop of sugar and molasses having been the largest ever known in the island and the prices fair, while the crop of 1890 will exceed that of the past year.

Real estate values are increasing, and business in general is better than it has been for years. Most of the refining sugar goes to the United States, while the higher grades (small in quantity) are shipped to England and the British provinces. The exports of sugar were a little less, but those of molasses nearly double those of the year 1888. The larger portion of molasses goes to the British provinces. There has been a great demand for tonnage for the United States, and the demand promises to continue.

The treasury has a surplus this year (1889); in 1888 it could not meet the claims on it.

Several new schemes are being pushed which promise to benefit the island. A screw dock is nearly completed which will take vessels of 250 feet length; beam (extreme), 36 feet; weight, about 1,500 tons. Harbor improvements in the shape of breakwater and inland basin are being planned and surveyed. If carried out they will certainly greatly benefit ships and ship-owners, if not this island. A new lunatic asylum is being built on comparatively modern lines. A new water-works company is supplying the country at large with water for agricultural as well as domestic purposes. One new artificial ice factory, with good backers, is being built. Various acid and chemical manufacturing companies have been founded. The few small industries of the island stand about stationary. There is a trifling change towards American goods in the way of favoring hardware, in the line of tools—not that there is any great demand for them, but that they are a little more easily introduced than formerly and somewhat better known.

MANUFACTURES.

The rum distilleries number twenty-three, as last year, and there is no change to report. The small industries remain stationary, their production being about the same as that of 1888. No new industries have as yet sprung up, although several are in contemplation.

General navigation.

ENTERED.

Year.	Steamers.		Sailing vessels.		Total.	
	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.
1888	305	401,968	1,066	160,748	1,371	562,716
1889	330	438,543	1,067	173,200	1,497	611,743

General navigation—Continued.

CLEARED.

Year.	Steamers.		Sailing vessels.		Total.	
	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.
1888	307	363,646	1,004	146,381	1,284	510,027
1889	324	434,752	1,050	171,233	1,374	1,805,985

American vessels entering and clearing the port of Barbadoes.

ENTERED.

Year.	Steamers.		Sailing vessels.		Total.	
	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.
1888	5	9,546	118	39,664	123	49,210
1889	6	12,054	123	44,243	129	56,297

CLEARED.

Year.	Steamers.		Sailing vessels.		Total.	
	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.
1888	5	9,546	115	39,159	120	48,706
1889	6	12,054	116	42,263	122	54,317

GENERAL COMMERCE.

Imports in 1888	$5,080,757.72
Imports in 1889	5,814,576.02
Increase	733,818.30
Exports in 1888	5,158,000.74
Exports in 1889	4,942,024.28
Decrease	215,976.46

TRADE WITH THE UNITED STATES.

Imports in 1888	$1,910,412.54
Imports in 1889	1,882,293.48
Decrease	28,119.06
Exports in 1888	2,660,337.68
Exports in 1889	2,903,568.00
Increase	243,230.32

REVENUES AND EXPENDITURES.

Year.	Revenue.			Expenditures.
	Customs.	Other sources.	Total.	
1888	$481,378.46	$290,644.74	$781,023.20	$718,606.92
1889	486,900.04	303,753.19	790,653.23	701,307.95
Increase	5,521.58	4,108.45	9,630.03	*17,298.97

* Decrease.

The amount expended by the Government for education during the year 1889 was $69,233.76.

VITAL STATISTICS.

The number of marriages was 976; baptisms, 7,316; deaths, 6,358.

CRIMINAL STATISTICS.

The number committed to prison was: Men, 1,412; women, 1,538; friendless, 98; total, 3,048.

IMMIGRATION.

Since the stoppage of the Panama Canal works there has been no immigration worth mentioning.

SANITARY.

The health of the island during this year has been good.

THE METEOROLOGICAL RECORD FOR 1888.

Observations were taken as follows:

Longitude west		59° 37′ 30″
Latitude north		15° 5′ 30″
Number of feet above sea-level		430
Barometrical pressure at 9 a. m	degrees	29.70
Mean temperature of air for the year	do	80
Rain-fall	inches	91.70
Wind—		
Northeast	days	329
Southeast	do	26
Northwest	do	2
West	do	7

E. A. DIMMICK,
Consul.

UNITED STATES CONSULATE,
Barbadoes, September 11, 1889.

TRADE AND COMMERCE OF SAMSOON.

REPORT BY CONSULAR AGENT HOELZER.

[Translated from the German by Consul Jewett, of Sivas.]

AGRICULTURE.

The agricultural yield for the year was an unusually large one, and, as a result, trade of all kinds has been prosperous. The local customs office states that the increase in exports for the year over 1888 amounted to 59,000,000 kilograms. These figures are, however, probably not entirely correct.

Prices.—The prices for grain have ranged during the year substantially as follows: Wheat, 10 to 13 francs; corn, 8 to 9.50 francs; oats, 8.50 to 10 francs, per 100 kilograms. The largest exportation has been to Marseilles. The following are prices realized there: Wheat, 15 to 17 francs; corn, 10.50

to 12 francs; oats, 12 to 13 francs, per 100 kilograms. Freights on wheat to Marseilles were 150 to 175 francs; on oats, 2 to 2.15 francs, per 100 kilograms.

TOBACCO.

Tobacco is the most important product of this district, Samsoon and Bafra tobacco being well known and highly esteemed in all parts of Europe and America. Although there were some 11,000 donoums* more under cultivation in 1889 than in 1888, the yield was 415,000 kilograms less. The quality, however, was greatly superior. The tobacco crop for 1888 amounted to 4,000,000 kilograms; for 1889, 3,585,000 kilograms. The exports of tobacco in 1889 amounted to 4,952,700 kilograms, as against 2,741,277 kilograms in 1888. The increase in export, notwithstanding the smaller crop, is explained by the fact that the leaf is not exported the same year it is grown. The exports of 1889 include the crop of 1888 and a part of that of 1887.

In October, 1889, the duty on tobacco exported to Egypt was reduced from 3.90 piasters to 1 piaster per kilogram, which greatly increased the exportation to that country.

IMPORTS.

The imports from the United States would be much greater were there a direct line of steamers between New York and Constantinople. All American goods must come by the way of London. A direct line is greatly to be desired. The following articles of American manufacture find ready sale: Pumps, agricultural machinery, American prints (which are sold at the same prices as those of German and Russian manufacture and are preferred for quality and designs), sewing-machines (both foot and hand power). The French system of cigarette-making machines used in the Règre tobacco factories at Samsoon is not satisfactory, and it is probable that American machines could be introduced if their superior advantages were properly shown. It will give me great pleasure to answer any inquiries from manufacturers of such machines.

The introduction of the "Pasteur method" in the cultivation of silk cocoons at Amasia (70 miles south of Samsoon) has re-established that industry, which now seems to have a brilliant future before it.

SHIPPING.

There are seven regular lines of steamers touching at this port and connecting it with Constantinople and other Black Sea ports. They are the Austrian Lloyd, Russian, Mahsonssé, and Ciurdjis lines, weekly, and the Messagerie Maritimes, N. Paquet & Cie., and Pan-Hellenique Cie., every two weeks. There were in all 629 arrivals of steamers in 1889, with 533,102 tons burden, as against 547 steamers, with 526,493 tons, in 1888.

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*1 donoum=1,025 square meters.

TRANSPORTATION.

The means of transportation to and from the interior are in a very unsatisfactory state. All goods must be carried in wagons or by camel or horse caravans. For the past forty years European syndicates have sought to obtain concessions for a railroad from Samsoon, by the way of Amasia, to Sivas, but with no success. The Government now, however, appears to be better disposed toward the project, and it seems very probable that one of the four applicants for the concession will obtain it. Such a road would work an industrial revolution in the country.

The average cost of transportation is now as follows: From Sivas to Samsoon, 50 piasters ($2.20) per 100 kilograms; passengers, 180 piasters ($8) per 160 miles. From Amasia to Samsoon (70 miles), 18 piasters (80 cents) per 100 kilograms.

IMPORTS AND EXPORTS.

Commerce of Samsoon, direct or indirect, via Constantinople, for 1889.

IMPORTS.

Articles.	Quantity.	Value.
	Tons.	*Francs.*
Iron	5	4.750
Coffee	150	375,000
Wine and spirits	218	165,062
Sacks and wrappings	344	168,450
Window-glass and glassware	334	295,600
Clothes	2	50,000
Sugar	1,159	585,700
Matches	134	527,000
Cloth	5	40,250
Weapons and pistols	2	5,000
Steel bars	78	38,900
Alizari	70	57,300
Paper	104	78,500
Cotton and wool goods and yarns	290	569,000
Iron	1,320	290,800
Machines and pumps	70	69,550
Iron-mongery and lamps	294	133,375
Furniture	5	2,850
Manufactures	2,037	12,207,000
Nails	322	128,800
Tin	39	117,800
Copper sheets	51	102,000
Candles	13	18,200
Sulphur	2	1,000
Lime and cement	71	71,000
Cochineal	4	16,000
Worked skins	59	235,000
Lead	16	6,600
Shot	10	5,000
Chemicals	6	45,600
Ammonia	11	44,000
Material for buildings	623	210,000
Oil	93	93,600
Pastry	19	11,400
Petroleum	2,067	310,050
Lemons and oranges	61	15,250
Fruits	229	114,500

Commerce of Samsoon, direct or indirect, via Constantinople, for 1889—Continued.

IMPORTS—Continued.

Articles.	Quantity.	Value.
	Tons.	*Francs.*
Dyes	17	17,500
Tobacco and tumbeki	142	114,200
Olives	73	58,400
Salt	2,545	305,400
Divers metals	120	33,700
Starch	4	6,000
Henna	40	28,000
Divers articles	513	999,875
Soap	284	170,250
Total	14,064	18,938,312

EXPORTS.

Articles.	Quantity.	Value.
Oats	12,774	1,021,920
Wheat	33,421	6,684,200
Salted fish	2	2,250
Bowls of wood	15	3,000
Bones	150	15,000
Bamiès	71	142,000
Hemp	63	65,000
Copper	204	408,000
Fruits	393	192,250
Flour	2,977	766,750
Yellow berries	629	944,250
Gum tragacanth	53	159,000
Mohair	317	498,250
Wool	378	378,000
Mahlep	62	61,750
Manufactured goods	45	212,000
Maize	11,758	1,178,875
Barley	315	31,500
Opium	68	1,370,000
Pastourma	213	213,500
Raw skins	364	728,500
Linseed	77	53,900
Hemp seed	53	36,800
Poppy seed	1,037	311,100
Tobacco	4,372	5,801,950
Valonia	303	151,500
Bran flour	131	13,100
Legumes	581	139,960
Eggs	95	111,840
Walnut knobs	70	66,400
Salep	11	46,000
Gall-nuts	56	84,000
Wax	4	13,500
Butter	13	13,000
Worked skins	2	6,000
Fur	1	7,000
Tallow	16	9,600
Divers articles	425	447,140
Total	71,435	22,360,685

HENRI HOELZER,
Consular Agent.

UNITED STATES CONSULAR AGENCY,
Samsoon, August 12, 1890.

TRADE AND COMMERCE OF ST. THOMAS.

REPORT BY CONSUL TURNER.

AMERICAN COAL.

There is little to add to former reports concerning this island except to state that now the imports from the United States considerably exceed those from Great Britain, whereas three years ago it was just the reverse. In 1887 the total value of imports from Great Britain was $406,310 and from the United States $319,105, while for the fiscal year ended March 31, 1890, the value of the imports from Great Britain was $364,544 and from the United States $400,178. The increase of $81,073 from the latter country is due to the increased importation of American coal. In the year 1887 the value of the coal imported was as follows: From Great Britain, $64,295; Germany, $23,840; United States, $35,340. The value of the same for the fiscal year ended March 31, 1890, was: From Great Britain, $48,224; United States, $142,118, none coming from Germany. All of the steam-ship lines here use American coal only, except the Royal Mail (British), which imports Cardiff coal.

During the past year all of the American coal has been brought here in British steam-ships, excepting six sailing vessels (American), three from Newport News and three from Philadelphia, with a total registered tonnage of 4,056 tons. Within this period there have been here from the United States with coal twenty-three steamers, with a total registered tonnage of 25,577 tons. Twenty-one of these were British and two Norwegian, the average registered tonnage of each being 1,200 tons. For the year previous (in which there was a falling off from preceding years) there were twenty-two sailing vessels here with coal, fifteen from Great Britain and seven from the United States; and now, though the importation has increased considerably more than half, the sailing vessel does annually less of the carrying.

THE HAMBURG-AMERICAN PACKET COMPANY.

Of the five steam-ship lines that touch here for coal the most extensive (in fact, the most extended in the West Indies) is the Hamburg-American Packet Company, which has seven steamers per month from Hamburg via Havre, the routes diverging from this point. In my report in December last on the steam-ship lines I stated that the West Indian fleet of this company consisted of eighteen steamers. Now it consists of twenty-two, ranging from 1,400 to 1,600 tons register, and there are now in process of construction three additional steamers, which, I learn, are to be placed in the Cuban trade. All of these are cargo steamers, the company not especially soliciting passenger traffic, though there are limited accommodations. Through the efficient management of a superintendent for the West Indies, stationed here, and one in Central America, located at Guatemala city, with agencies at each port in every island, as well as at inland towns in Venezuela, Colombia, the Central American states, and Mexico, this company has increased its business in a wonderful ratio in the past seven or eight years. I am sure that there is no line running to the West Indies from Europe that is as well managed, and, consequently, as successful.

PUBLIC HEALTH.

According to official reports, the death rate for the year 1889 was thirty-one to the thousand. There were 465 deaths, the principal causes being as follows: Consumption, 88; infantile atrophy, 68; old age, 56; intermittent and remittent fevers, 54; heart disease, 26; brain disease, 16; liver disease, 14; chronic diarrhea, 14; chronic dysentery, 13; apoplexy, 12; chronic alcoholism, 13. It is remarkable to note the large number of deaths from consumption. This is accounted for upon two grounds: one, that food of the lower classes is of an inferior quality, and, even if it were good, inadequate in quantity, which the large number of cases of infantile atrophy partly confirms; the other potent cause is the manner of living. Frequently seven or eight, and generally six, negroes sleep in a single tenement room about 14 feet square and 10 feet high, giving about 280 cubic feet of air to each individual, while medical authorities place the requisite number of cubic feet of air for each person in a sleeping room at 1,000. Worse still, the doors and batten window-shutters are tightly closed at night, and not a whiff of fresh air is allowed to get in at any crack or crevice. This vitiated atmosphere is inhaled and re-inhaled with additional impurities at each inspiration, and if a tuberculous disease exists in any one of the occupants, it must be transmitted by such an impregnated—I might say foul—air to the others, particularly those who have the least tendency to pulmonary weakness. I am sure that in these densely inhabited and tightly closed one-story tenement rooms, of which there are hundreds, the temperature at night for six months in the year must be at least 87°, while the usual range of the thermometer in a well-ventilated apartment is 79° or 80°. The death rate for the present year has been exceedingly high, being fifty-seven to the thousand for the quarter ended March 31 and thirty-two for the quarter ended June 30.

FINANCES.

For the past ten years there has been an annual deficit in the colonial budget, increasing with each succeeding year. For the fiscal year ended March 31, 1890, it was $57,000, and that is about the estimated deficit for the next fiscal year.

FOREIGN TRADE.

The total imports were $1,270,278, about the same as for the past three or four years. The total exports can not be given, since no official record thereof is made.

MORTIMER A. TURNER,
Consul.

UNITED STATES CONSULATE,
St. Thomas, August 30, 1890.

AUSTRALASIAN WOOL TRADE.

REPORT BY CONSUL GRIFFIN, OF SYDNEY.

Although the Australasian wool season is practically over by the 1st of March, the local and London sales are continued for several months after that date, and the exports from the colonies are not made up until the 30th of June.

In my report on the wool trade transmitted to the Department on the 19th of March last it was mentioned that the exports from all the colonies for the year ending the 30th of June would probably exceed those of the previous year by 150,000 bales. The actual increase, however, according to a return just published, was 108,000 bales. The total exports from the 1st of July, 1889, to the 30th of June, 1890, was 1,462,598 bales, against 1,354,650 bales for the year previous. The increase in Victoria was 69,927 bales and in New South Wales 18,496 bales. The export from the former colony was 352,982 bales and from the latter 422,909 bales. The export, however, from Victoria does not represent the product of that colony, but includes no inconsiderable quantity of wool produced in New South Wales, which, during certain seasons, finds its outlet in Victoria and South Australia. The fact is, New South Wales produces eight times more wool than South Australia and nearly five times that of Victoria.

The demand for Australasian wool in England and on the Continent was greater than was expected, especially upon the decline in prices during the months of February and March of 1890. At the sales in May and June the prices rallied again. Medium and inferior greasy, superior greasy merino, and superior combing washed advanced 1 cent per pound and scoured merino 2 cents per pound; other descriptions were represented as unchanged. The increased demand for Australasian wool is said to be due to the deficiency in the supply of the river Plate wool, which showed a decline of 80,000,000 pounds from that of last year. It is believed in Sydney that there will be a strong demand for Australasian wool in New York, Boston, and other manufacturing cities in the United States. The wools required for the American market, as often mentioned in my reports, are long in staple, very soft, light, and fine, and of a bright color. Such wools invariably command excellent prices, whether purchased in the colonial or London markets. About 7,000 or 8,000 bales were purchased by American buyers at the London sales. Victorian and New Zealand cross-breeds brought, during the month of May and the first of June, as much as 29 cents per pound; 300 bales of New South Wales wool averaged 24 cents per pound. The present tariff rates in the United States practically prohibit the importation of wools from Australasia other than those of the best quality and not too heavy in the grease.

Very fair prices were realized for Australasian wools at the Antwerp sales, especially when the depressed condition of the market is taken into consideration. The supplies in the month of June, however, were very much larger than usual and amounted to 11,000 bales, against 1,800 bales for the corresponding period of last year. The steadily increasing importance of the local sales in Sydney, Melbourne, and other Australasian cities is interfering seriously with the sales in Europe, especially those in London.

About 60 per cent. of the wool produced in New South Wales and Victoria is now disposed of at the local sales and 43 per cent. in the whole of the group, the figures being 635,000 bales out of 1,463,000 bales. The subjoined table shows the rate of increase in the local sales since 1887–'88:

Year.	Production.	Quantity sold in Australia.	Percentage sold.
	Bales.	*Bales.*	
1887–'88	1,273,489	407,000	32
1888–'89	1,354,650	507,000	37
1889–'90	1,463,000	635,000	43

The local sales have also increased in New Zealand, but not to the same extent as those in New South Wales and Victoria. The following statement shows the figures of the sales in New Zealand since 1886–'87:

	Bales.
1886–'87	35,000
1887–'88	37,000
1888–'89	50,000
1889–'90	67,000

The wool-growers in Australia appear determined to do every thing in their power to encourage the local sales, and they state that the local markets afford exceptional advantages to American buyers, for the reason that freights by sailing ships from Australia to the United States are about the same as to England, and therefore Americans can afford to pay the same price in one market as the other. It therefore stands to reason that any one who can grow wools suitable to American requirements does not act for his interest in shipping to London, as the additional expense to the grower is fully 2 cents per pound. The Melbourne (Victoria) Australasian of the 19th instant, in commenting upon this subject, says:

> Some years ago the wool-growers of the district between Albury and Wagga (New South Wales) were, unwisely, in the habit of marketing their wools in a fleece-washed state, thus excluding American competition. It was soon found, however, that it paid much better to sell in the grease, and thereby secure that American demand for which their wools, so light and showy, are in every way suitable; and at the present time a very great proportion of the produce of that district is disposed of outside the Melbourne market, and a very small quantity in a washed state. It is rather a matter of surprise that so many clips grown further west—not quite so light or free from burr, but still suitable for America—should be shipped to the London market; but the proportion so treated is growing less every year. The wool-growers of the western district of this colony, also, are becoming more alive to the value of this American demand, as witness the number of clips sold in Geelong for the first time during the past season.

DISTRIBUTION OF AUSTRALASIAN WOOL.

The following table shows the quantity of wool exported by each colony from July 1, 1889, to June 30, 1890, together with the names of the places to which exported:

Colony.	Exports to—					Total.
	London.	Continent.		America.		
		Direct.	By way of London.	Direct.	By way of London.	
	Bales.	*Bales.*	*Bales.*	*Bales.*	*Bales.*	*Bales.*
Victoria	303,164	87,554	23,825	3,583	7,021	425,147
New South Wales	358,933	106,306	6,938	737	....	472,914
South Australia	132,854	11,806	1,559	....	....	146,219
Queensland	103,425	....	....	....	....	103,425
West Australia	23,812	....	....	....	....	23,812
Tasmania	18,970	....	....	....	....	18,970
New Zealand	272,513	....	....	....	....	272,513
Total	1,213,671	205,666	32,322	4,320	7,021	1,463,000

The chief inspector of stock of New South Wales furnishes the subjoined table, showing the quantities of New South Wales wool shipped from Sydney during the years 1888–'89, together with the proportions shipped by way of Melbourne, Adelaide, and Brisbane:

Port of shipment.	1888.			1889.		
	Greasy.	Washed.	Total.	Greasy.	Washed.	Total.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
Sydney	148,681,473	3,410,500	152,091,973	161,240,577	3,101,814	164,342,391
Melbourne	38,421,221	163,327	38,584,548	54,265,699	1,519,199	55,784,898
Adelaide	14,369,559	....	14,369,559	9,470,909	1,481,528	10,952,437
Brisbane	269,352	15,648	285,000	306,251	16,590	322,841
Total	201,741,605	3,589,475	205,331,080	225,283,436	6,119,131	231,402,567

This shows an increase in the quantity of wool shipped during the year from the port of Sydney of 12,250,418 pounds as compared with that shipped in 1888.

COST OF GROWING WOOL.

It is very difficult to form an estimate of the cost of growing wool in Australasia on account of the varied conditions of the country in which it is grown. Estimates, however, have been made by experts, which, doubtless, approximate the actual cost, and which may form something like a guide for those interested in comparing the cost of wool production in this country and the United States. The cost of rent for pastoral land varies from a nominal sum in Australia to about $1.84 per acre per annum. The cost of rent in an average district, say for a well-improved freehold country, with a good rain-fall and capable of carrying one sheep to the acre, would be about 73 cents per acre, and if capable of carrying two sheep to the acre it would be from $1.45 to $1.95 per acre; the average cost in the dry districts would be about 18 cents per acre. At least this estimate meets with the approval of Mr. Cuthberth Fetherstonehaugh, a successful wool-grower in this colony, and of Mr. James Wilson, secretary of the Commercial, Agricultural, and Pastoral Association of New South Wales. I am indebted to the former gentleman for the following table, showing the cost of rent, improvement, etc., in what is called the dry country:

Acreage required to carry 1 sheep.	Length of lease.	Cost of improvements per sheep.	Interest at 7½ per cent. on cost of improvements.	Assessments (sheep, rabbits, etc.).	Rent per sheep.	Total rent, including interest on cost of improvements.	Add sinking fund to cover cost of improvements.	Total cost per sheep.*
	Years.	*s. d.*	*Pence.*	*Pence.*	*Pence.*	*Pence.*	*Pence.*	*Pence.*
1 acre	15	5 0	4½	1	9	14½	4	18½
2 acres	15	5 10	5½	1	8¼	14½	5	19½
3 acres	15	6 8	6	1	7½	14½	6	20½
4 acres	20	7 6	6¾	1	6¾	14¼	4½	19
5 acres	20	8 4	7½	1	6	14½	5	19½
6 acres	20	9 2	8¼	1	5¼	14½	5½	20
7 acres	20	10 0	9	1	4½	14½	6	20½
8 acres	20	10 10	9¾	1	3¾	14½	6½	21
9 acres	20	11 8	10½	1	3	14½	7	21½
10 acres	20	12 6	11¼	1	2¼	14½	7½	22

*These figures include rents, interest on cost of improvements, assessments, and sinking fund.

Mr. Fetherstonehaugh states, in a note accompanying the table, that the greater the average required to feed a sheep the greater will be the cost of improvement per sheep; and he adds that interest on this cost should be calculated at so much more rent. Dry country that will carry one sheep to the acre can be well improved at a cost of $1.22 interest on this amount, viz, 9 cents added to 18 cents would make 27 cents as a fair rate of adjustment. Mr. Fetherstonehaugh says that if country requiring 9 acres to feed one sheep is considered, the cost of improving it would involve an expenditure of $19,952.65 for each block of 64,000 acres. Interest on this at 15 cents per annum would amount to 21 cents per annum. The rent, therefore, must be reduced by the difference between the relative cost of improvements, which, in this case, is 12 cents. The rent, therefore, of the lessee of the 9-acre country must be reduced to 6 cents per sheep. This amount, added to the 21 cents for interest, brings the rent of the 9-acre man to a level with that of the 1-acre lessee. Then comes the necessity for the payment of improvements, for, if this be not granted, a sum to make a sinking fund to cover cost of improvements must be added and reckoned as so much more rent. This sum, in the case of the 1-acre man, will be 8 cents per sheep, while the 9-acre man will have to provide an annual amount of 14 cents per sheep. The difference (6 cents) must come off the rent he pays the State, so that, to bring the two men together, the 9-acres-to-the-sheep lessee can pay the State no rent at all.

Mr. Fetherstonehaugh says further that the difference is so great that the inside grazier on the improved freehold land, while paying a rent of 73 cents, can calculate on a profit of 61 cents per sheep. The unfortunate occupier of outside Crown lands, which he has to improve at great outlay, may, if the inevitable droughts are not too severe, make a profit of 14 cents per sheep. On well-grassed country the wool industry pays much better, and Mr. Fetherstonehaugh estimates the average profit at 57 cents per sheep, although in many instances the net profit is more than double that amount.

The following figures show the value of wool and cost of production:

Value of wool.—Six and one-half pounds of wool at 20 cents per pound for fleece, 14 cents per pound for pieces, and 4 cents per pound for locks (in Sydney), $1.17; returns of sales for fat sheep or stores (allowing 75 per cent. for increase and $1.68 for net sales), 49 cents; gross returns, $1.66.

Cost of production.

Rent	$0.73
Carriage, at $14.59 to $17.02	.05
Rams, annual cost	.02
Assessments, rabbits, etc	.02
Expenses of management	.16
Shearing, pressing, and packing	.09
Total	1.07
Profit per sheep	.60

NUMBER OF SHEEP.

The number of sheep in Australasia on March 1, 1890, was about 105,000,000. The returns from all the colonies have not yet been published, but those received show that there has been an increase in New South Wales of 3,603,297 over the number for last year, the figures being 46,503,469 for 1889 and 50,106,768 for 1890. The total number of sheep in the whole of the group for 1889 was 96,580,639. Of these New South Wales had 46,503,469; Victoria, 10,818,575; Queensland, 13,444,005; South Australia, 7,150,000; Western Australia, 2,111,392; Tasmania, 1,430,065; New Zealand, 15,122,133; total, 96,580,689. The rate of increase in New South Wales has been remarkable, the number having nearly doubled since 1878. In the latter year it was 25,106,768, and in 1890, as previously stated, 50,106,768.

Mr. Bruce, chief inspector of stock in New South Wales, to whom I am indebted for the preceding returns, states that the increase during 1889 was greatest in the northeastern and eastern portions of the colony and less in the central, with an actual decrease in the northwestern and western districts, where the drought of 1888 was most severely felt, the drought continuing there until March, 1889. The result was that not only were considerable numbers of sheep lost, but those that remained were so reduced as to be in a very low condition for breeding; and the owners in that dry country, having before them the sad experience from drought, dreaded a continuance of the evil and refrained from breeding.

DIFFERENT BREEDS.

Mr. Bruce estimates the total number of combing merino sheep in New South Wales at 34,645,632 and the clothing sheep at 14,313,709, thus making the total number of merinos 48,959,341. The long-wooled sheep numbered 452,574, of which 1,450 were Romney Marsh; ordinary Lincolns, 176,683; and Leicesters, 176,683.

The following tables show in detail the different breeds of sheep, sexes, classes, etc., in New South Wales on March 1, 1890:

Number of merino sheep in New South Wales.

Class.	Combing.				
	Rams.	Ewes.	Wethers.	Lambs.	Total.
Superfine:					
Pure and stud	54,572	654,507	169,484	299,429	1,177,492
Ordinary	83,797	2,305,976	1,587,037	1,236,201	5,213,011
Total					6,390,503
Medium:					
Pure and stud	87,162	1,377,815	610,411	774,379	2,849,767
Ordinary	158,191	6,349,386	3,549,476	3,163,657	13,220,710
Total					16,070,477
Strong:					
Pure and stud	56,696	1,256,319	678,609	830,203	2,821,827
Ordinary	100,710	4,489,861	2,590,877	2,181,377	9,362,825
Total					12,184,652
Grand total					34,645,632

Class.	Clothing.				
	Rams.	Ewes.	Wethers.	Lambs.	Total.
Superfine:					
Pure and stud	15,787	282,440	162,032	174,679	634,938
Ordinary	27,674	755,318	528,723	400,184	1,711,899
Total					2,346,837
Medium:					
Pure and stud	27,167	370,754	211,899	232,906	842,726
Ordinary	77,485	3,581,404	1,695,649	1,574,853	6,929,391
Total					7,772,117
Strong:					
Pure and stud	26,214	485,405	237,713	298,014	1,047,346
Ordinary	42,947	1,319,427	1,067,403	717,632	3,147,409
Total					4,194,755
Grand total					14,313,709
Total number of merino sheep					48,959,341

Number of long-wooled and cross-bred sheep in New South Wales.

Breed.	Rams.	Ewes.	Wethers.	Lambs.	Total.
Lincolns:					
Pure and stud	3,247	33,696	27,802	24,302	89,047
Ordinary	5,767	61,553	48,532	43,394	159,246
Total					248,293
Leicesters:					
Pure and stud	2,771	23,607	18,004	13,578	59,960
Ordinary	2,320	41,960	44,450	27,993	116,723
Total					176,783
Downs:					
Pure and stud	484	3,910	2,437	2,855	9,686
Ordinary	645	6,881	4,624	4,312	16,462
Total					26,148
Romney Marsh:					
Pure and stud	110	267	90	87	554
Ordinary		600	296		896
Total					1,450
Grand total					452,574
Crosses of the above breeds, with merino principally	4,567	266,108	266,108	177,658	694,853
Total number of sheep in New South Wales					50,106,768

Number of sheep according to sexes and classes.

Rams	778,313
Ewes	23,647,106
Wethers	13,501,656
Lambs	12,179,693
Total	50,106,768

During the year 1889 143 sheep were imported into this colony from England and other countries. Of these 87 were American merinos, 5 German merinos, 4 English South Downs, 20 Shropshire Downs, and 27 Lincolns. During the year 4,077 sheep passed through quarantine, and the inspectors report that in almost every case they suffered little injury while in quarantine. Mr. Bruce is of opinion that the Lincolns among the long-wooled sheep give the best returns in wool, as well as in weight of mutton, and that the cross-breeds come next. The annual "cast" of fat sheep for the ensuing year was estimated by Mr. Bruce at 3,824,333, and store sheep at 3,644,703.

The number of sheep kept in paddocks was 48,617,848, while 918,362 were shepherded, and 570,558 were kept both ways. In forty-five districts the sheep were represented as improving, and in thirteen districts as stationary, and in two districts as deteriorating.

The general averaging for the lambing for the whole of the colony of paddocked sheep is returned at 64¾ per cent. and shepherded sheep at 54 per cent. In twenty-two districts the lambing was high, in twenty-five districts medium to fair, and in thirteen districts very low. The reasons given for the high percentage are the favorable season and the runs not overstocked, while the fair and low percentages are attributable to unfavorable season, poverty of ewes, and want of feed and water. After lambing numbers of lambs perished through heavy rains and flocks harassed by dogs.

The paddocked sheep show a higher percentage than the shepherded sheep by 10¾ per cent. The number of lambs shorn in the grease was 6,790,889; the number washed, 74,693. The number of sheep shorn in the grease was 36,553,856; hot water and spout washed, 80,000; creek washed, 475,254; scoured, 1,146,105. In reference to the number of sheep in Australasia, it may be mentioned here that only one or two of the colonies have reached their carrying capacity. It is estimated that New South Wales could carry at least 50,000,000 more sheep than at present without danger of being overstocked. According to a recent return, the actual number of acres upon which sheep are dispastured in New South Wales is 164,482,034, giving 2.92 acres for each sheep after making a due allowance for other stock.

Mr. Coghlan, statist for New South Wales, to whom I am indebted for the estimate, says that he made it at a rate of ten sheep to every head of large stock. If the large stock were not included, there would be 4.21 acres per sheep, but after allowing for large stock it would be 6.75 acres. The following is Mr. Coghlan's estimate in each of the colonies:

Colony.	No. of acres per sheep.	Colony.	No. of acres per sheep.
New South Wales	2.92	West Australia	176.70
Victoria	2.01	Tasmania	5.23
Queensland	6.75	New Zealand	2.21
South Australia	42.86		

WEIGHT OF CLIPS.

The average weight of clips in New South Wales was as follows:

Description.	Lambs.		Sheep.	
	Lbs.	*Oz.*	*Lbs.*	*Oz.*
Grease	1	11	5	13
Creek washed	1	9	3	3
Hot water and spout washed			4	2
Scoured			2	14

According to the number, the total clip would be 36,553,856 sheep shorn in the grease; average clip, 5 pounds 13½ ounces per sheep, making 213,611,596 pounds. Creek washed, 475,254 sheep; average clip, 3 pounds 3 ounces per sheep, making 1,514,872 pounds. Hot water and spout washed, 80,000 sheep; average clip, 4 pounds 2 ounces, making 330,000 pounds. Scoured, 1,446,105 sheep; average clip, 2 pounds 14 ounces, making 4,157,552 pounds. Of lambs shorn in grease there were 6,790,889; average clip, 1 pound 11½ ounces per lamb, making 11,671,840 pounds. Washed, 74,693 lambs; average clip, 1 pound 9 ounces per lamb, making 116,707 pounds. The total clip was 231,402,567 pounds, or an increase of 26,071,487 pounds over last year's clip, and is accounted for by a greater number of sheep having been shorn in the grease this year than in 1888 and the heavier fleeces through the favorable seasons.

THE INTERCOLONIAL SHEEP SHOW.

The annual intercolonial sheep show was held in Sydney in the month of April last, and was well attended. Some of the best sheep in Australasia were exhibited, especially from New South Wales, Queensland, and Tasmania. The number exhibited was not as large as usual, but their quality was very much better than that of last year, or, indeed, of any other previous show. In the division for fine and superfine sheep, out of a class of four rams over two and one-half years old, Clark & Co., of Queensland, stood first and W. H. Bennett, of Tasmania, second. The one-and-one-half-year ram class had twelve exhibits, and in these stood "The Champion" by "Commotion," the Hon. F. B. Suttor's ram, a very large-framed animal evenly covered with a fleece of the best quality. In the fine-wooled ewes the Bathurst Sheep Breeding Association was first in a large class of ewes over two and one-half years with a pure Vermont, which took the prize recently at the Mudgee show. In the ewes of one and one-half years the Hon. F. B. Suttor took the prize with a young "Commotion." In the junior class of sheep the first prize was won by a sheep from Tasmania. In the one-and-one-half-year rams Mr. W. H. Gibson, of Tasmania, took first and second prizes with two very fine rams, the first being a quarter-bred and the second a half-bred American. These animals were large, strongly framed, and evenly covered with wool of excellent quality. One of them is held as a reserved champion.

TRIAL OF SHEEP-SHEARING MACHINES.

At the intercolonial sheep show held at the agricultural grounds near Sydney in April last an interesting trial was made of the various kinds of sheep-shearing machines now in use in Australia. Prof. W. N. Warren, who occupies the chair of engineering in Sydney University, and Mr. D. H. Neal, engineer on the Government railways, acted as judges. Among the machines at the trial were the Woolseley machine, the Suckling, the Brewarrina machine, and the Silver machine. The judges pronounced the Woolseley and the Suckling machines to be superior to the others. They said, however, that each possessed exceptional advantages and performed excellent work of its kind.

The Woolseley machine is the same as that mentioned in former reports of mine, but it has recently been greatly improved, and is now being brought into very general use. It can be worked either by steam or horse power. It is an Australian invention, and is highly commended by the stock branch of the New South Wales Government. The motion is applied through a shaft, on which is a bevel wheel which imparts motion to the small bevel pinion, the spindle of which gives motion to the core of the flexible shaft, which, being connected with the shears, gives the rotary motion to the shaft, causing the cutter to reciprocate over the comb. The shearer weighs 2 or 3 pounds. A forked piece reciprocates over a comb with about eleven teeth at the rate of about four thousand times a minute. The appliance for conveying pressure on to the fork, and thus on to the cutter, is of novel construction. It is a pin in the shape of a mushroom, and is a portion of a circle, the pin being the exact center of the circle. Its head rests on the screw piece, which is near the tension nut. The point of contact is perfectly plain, and as it reciprocates backwards and forwards over the comb the pressure at every point of the center is the same.

The "Compressed Air Shearing Machine" is also an Australian invention, and has just been introduced to the public. The air used is produced by a small pressure, the capacity being five machines per horse-power, and is connected with the machine through an iron pipe and a rubber tube, without any shafting, pulleys, or bolts of any kind. The air is turned on and off by a tube convenient to the shears, the starting and stopping being instantaneous. The shearer weighs a little over 2 pounds, and one advantage claimed for it is that the exhaust air, which passes through the center of the machine, keeps it cool, and also keeps the cutter and the comb entirely free from fluff. There are ten teeth in the comb and the cutter has three teeth, the tension being given by the center screw, which the shearer works by simply lifting the lid of the shears' case, which can be done instantly. The air compressor is driven by a small boiler conveying the steam-pipe of the steam-cylinder to the compressor.

The "Brewarrina Shearer" is another Australian machine, the invention of Mr. Robert Dangar Dixon. It has had a few private trials in Sydney. The chief feature of the machine is the motive power, which is obtained by means of a flexible band driven by wire. The wire is encased in wooden beads, which prevent all friction and liability to burn. The motive power is steam or horse power. An endless rope drives the wheels, which afford rotary power to the flexible shaft. The shears are attached to the flexible band by a gamil joint. The principal improvement in the shears is that a revolving comb moves a lever backwards and forwards, and this imparts motion to the cutter, which consists of four points working upon a comb consisting of nine teeth. This makes a straight cut in front, and the tension is equally distributed.

The "Bariquand Shearer" is a French invention, and was also tried. The principle upon which it works is similar to the others. It can be shipped from France and sold here at a cost not to exceed $73. A steam-engine supplies the motive power, a 1 horse-power engine being capable of driving six machines. It is driven off a shaft on a separate intermediate, and from this intermediate to the shaft is an endless green hide band which imparts motion to the revolving disc in the shearer. This disc drives the cutter, which is composed of fifteen teeth working on a comb of sixteen teeth.

From the intermediate is an extension arm which, by the aid of the spring, takes the weight from off the shearer's wrist. This machine differs in principle from all the others on the ground. It is perfectly free from vibration, consequent upon the motion of the cutters being imparted by the rotary disc in the shears before mentioned. The sharpening machine is a grinding wheel, and is very easily mounted by a central nut. This wheel is made in copper, mounted on a cast-iron slab. The tension is easily regulated.

The "Silver Shearing Machine" was invented by Mr. W. Silver, of Tamworth, N. S. W. It is about eight months since it was perfected, and it has been tried at Boetive, N. S. W., where it sheared eight thousand sheep. The driving power is from wooden friction wheels, which, it is claimed, give greater gripping than iron and are lighter. The wheels are in halves, making it easier to put them on the shafts. One horse-power will drive six shearing machines. The cost per stand is about $48.66. The chief improvement claimed is a flexible shaft made of ribbon steel half an inch by 1.16 inches. This forms a spiral tube, in which there is a flexible shaft composed of catgut in sections. The rotary shaft is attached to the shearer in a very simple way by a hook, which is hooked on at right angles in the case, which is very simply closed by a sliding ring. The shearer weighs 2½ pounds. A disc imparts the motion to the arm which works the cutter. The motion of the bar working the cutter is imparted by the rotation of the disc, carrying a moving link. There are three points in the cutter and the comb containing the teeth. The tension is obtained by a conical nut with teeth in it, which is resting on a bolt joint, doing away with any friction that may occur in the conical nut.

ANNUAL STUD SHEEP SALES.

The sixteenth annual stud sheep sales of New South Wales began at the exchange sales-room in Sydney on the 4th of July last. The sheep offered had for some time past been under inspection at the quarantine grounds at Bradley's Head, near Sydney. Mr. Henry Austin, who acted as auctioneer, called attention to the absolute purity of blood in the sheep for sale. He said that a pedigree certificate accompanied each ram, showing his descent from the original Spanish flock of the King of Saxony, the history of which dates back to 1765. The sheep submitted were from the flocks of Mr. Otto Steiger, of Leutewitz, Saxony. The Steiger rams were large-framed sheep, with a deep-stapled wool of beautiful quality. The Eadegast sheep, on the other hand, are more like the original Silesian type, being smaller in size, with a rather short, fine wool of extreme density. The latter proved to be the most favored by Australian breeders. Six rams sold by Mr. Eadegast realized, on an average, $1,211.14 each. The top figure ($2,810) was paid by Mr. James Lee, of Larras Lake, for a six-tooth ram.

Mr. Otto Steiger and Mr. Robert C. Eadegast, of Thal-Oschatz, Saxony, both, while aiming at different ideals, preserved the absolute purity of breed with the utmost care.

Mr. Austin said further that, "for the purpose of preserving the style, stamina, and quality of the Australian merino, no importation of fresh blood could be so effective as that obtained from the original source of supply."

The following are the particulars of the sales effected: On account of Mr. Otto Steiger, of Leutewitz, Saxony—No. 88, four-tooth ram, Mr. Vincent Dowling, $255; No. 278, five-year-old ram, Mr. R. Jones, jr., $1,022; No. 153, four-tooth ewe, Mr. R. Jones, jr., $260; No. 202, six-tooth ewe, Mr. R. Jones, jr., $255. On account of Mr. R. C. Eadegast, of Thal-Oschatz, Saxony—No. 1.3, four-tooth ram, Hon. F. B. Suttor, $920; No. 72.5, four-tooth ram, Mr. Vincent Dowling, $869; No. 7.6, four-tooth ram, Mr. Vincent Dowling, $562; No. 324, six-tooth ram, Mr. James Lee, $2,810; No. 512, six-tooth ram, Mr. Vincent Dowling, $1,584; No. 343, six-tooth ram, Mr. G. H. Hebden, $536. The total amount of the sale was $9,074. A large number of merinos bred in New South Wales were sold on the 7th ultimo at the wool sheds of the New Zealand Loan and Mercantile Agency Company, at Sydney. The first lot offered were twenty pure, selected merino rams from the "Lue" stud flock, on account of Mr. Vincent J. Dowling. This flock was originally formed in 1823 by the late Mr. James Walker, who then owned "Lue," by the importation from England of some pure sheep, the direct descent of King George II's Spanish merino flock. Since then the greatest care has always been taken to maintain the character of the flock. One ram, which took first prize in its class at the Intercolonial Sheep Show, was sold to Mr. E. C. Bloomfield, of Armidale, for $766. Another first prize taker, a magnificent animal, was passed in at $1,303.

The sales of Mr. W. H. Geddes & Co., took place at their warehouse on the 10th ultimo and were largely attended. Among the sheep were a consignment of Vermont merinos, which brought good prices. Mr. W. H. Rowe secured one ram at $1,078, and another was purchased by the Australian Agricultural Company at $3,321. Messrs. McFarland Brothers' six Barooga Vermont rams realized a total of $8,048, with a general average of $1,341. Six stud ewes returned a total of $1,354, with a general average of $225.67. With one exception, the Barooga Vermont-Australian merino rams have averaged the highest prices during this year's sales. The Messrs. McFarland are paying more attention than ever to sheep breeding. They have recently purchased the property of Messrs. Dangar & McDonald, in the northern part of New South Wales, where they intend to keep a select flock of pure black sheep in addition to the one they have at Barooga.

Mr. Thomas Gibson realized at the sales $1,646 for seven Tasmania-bred rams. The stud sheep sales were concluded on the 16th ultimo, and the amount realized was nearly double that of last year. The highest figure reached at the sales for a single sheep was $3,577, paid by Mr. W. H. Watt to Messrs. Gibson & Son for their Tasmania ram Hero Prince. This is said to be the highest price ever paid in the colony. The nearest approach to it was in 1883, when Mr. Stephen Thomas paid $3,091 for Old Sir Thomas. Hero Prince was born in May, 1887; sired by Hero, by Prince of

Wales, and dam a very first-class stud ewe by Prince III; grand dam a very first-class ewe by Royal Duke, by Shepherd King; grand grand grand dam bred, as described, in Scone merinos, from original importations in 1820. Hero Prince has been used in the Scone stud for two years, and was taken out in April last.

The prices paid for the Vermont merinos would have been much larger if they had been out of quarantine grounds. The visit of the Hon. W. G. Markham, president of the New York Wool Growers' Association, to Australia in 1888 and 1889 has done much to create a demand for American sheep. Mr. Markham lost no opportunity to direct attention to their great value to Australian flocks. In 1887–'88 a number of these sheep were imported by Messrs. Morrison & Clark for Mr. Samuel McCaughey, one of the most extensive stock-farmers in the colonies, and who shears on his station over a million sheep per annum. The results of crossing the Vermont sheep with the Australian merinos were so satisfactory that Messrs. Morrison & Clark bought out another consignment, which sold, on an average, last October, at $521 each. The prices realized at the sales on the 15th ultimo were from $148 to $766. The choice stud rams selected by Mr. E. D. Morrison from those bred by Mr. I. O. Hamilton in 1888 were submitted for competition, one of them finding a purchaser in Mr. W. Wilson at $290 and the other falling to Mr. S. McCaughey for 40 guineas. One stud ram bred by Mr. H. W. Walker in 1888 realized $587, but another of the same breed was passed in at $357. Mr. McCaughey secured a choice stud ram bred by Mr. I. N. Parker in 1883 for $255, two choice stud rams bred by C. P. and E. D. Morrison for $409 and $357, one stud ram, bred by Mr. C. W. Hinds for $536, and several others at lesser prices. Mr. B. McCaughey purchased a choice stud ram bred by Mr. L. S. Burwell for $460, a stud ram bred by Mr. W. G. Wright for $409, a choice stud ram bred by Mr. G. H. Smith for $409, and two choice stud rams bred by Mr. I. H. Mead for $615 each; he also bought others at lower figures.

The Hon. F. B. Suttor, on behalf of the Bathurst Sheep Breeding Association, secured several fine sheep. Among them was a choice stud ram bred by F. & L. E. Moore, which sold at $766; a stud ram bred by Mr. H. C. Burwell & Son at $562. Mr. Close secured the stud ram Axtell, which was selected from the flock of I. B. Hamilton & Son. This animal realized $1,328, the largest price of the day. Among Mr. Close's purchases was the ram Chicago, which was sold for $536; a stud ram bred by Mr. C. W. Hinds for $1,277, a choice stud ram bred by Mr. I. C. Hatch for $536, another bred by Mr. F. B. Gorman for $511. Of the forty ewes offered, thirty-five were sold at an average price of $298, or a total of $10,449.

A consignment of thirty-nine Vermont rams and twenty-two ewes reached Sydney in the *Bothwell Castle* on the 11th ultimo. They were brought out by the Messrs. Bissell, of East Shoreham, Vt. They were put in the quarantine, where, according to the regulation of the port, they will remain until the 10th of October next. Visitors were allowed to inspect them, and twenty-three rams were sold on the 15th ultimo at an average of $357 each, The high prices paid for sheep in Australia attest the importance of these annual stud sales. The Sydney Morning Herald, in a recent issue, describing these sales, says:

> The extraordinary figures paid for sheep show the faith that breeders have in the value of good blood and that it is not reasonable to expect farmers would come from every part of the great island continent to pay hundreds of guineas for a single sheep merely for pastime.

Strong evidence is also furnished in favor of the value of these sales by the improvement in the flocks of the colony since the sales were inaugurated in 1874. At that time the average weight of the fleece in New South Wales was 4 pounds 15.3 ounces. The average weight of the fleece in 1889 was 5 pounds 13½ ounces. In fifteen years there has been an increase of a little more than 14 ounces per fleece. According to these figures, the 50,000,000 sheep at present in this colony have produced 290,000,000 pounds of wool, or 50,000,000 pounds in excess of what would have been produced by the same number of sheep in 1874.

G. W. GRIFFIN,
Consul.

UNITED STATES CONSULATE,
Sydney, August 2, 1890.

THE MANILA HEMP MARKET.

REPORT BY CONSUL WEBB.

The June quarter closed without showing any marked improvement in the hemp market, although the total shipment was over 7,000 bales more than during the March quarter; and there were indications in April that the break hoped for by the "bears" would occur. On the 9th of that month the price fell to $9.75, and it was predicted that it would go to $8; but, after a protracted period of unsteadiness, it advanced to $11.25, and before the end of the month reached $13.21, a most discouraging figure for the "bears," who are supposed to be working, or waiting, to force it down to $8. In May it remained comparatively steady during the entire month at $11 and $11.75, and in June it fell as low as $10, the highest price for the month being $11.56¼.

The shipment to Boston in June by one firm of 15,000 bales, for the greater part of which $11.56¼ was paid, was considered by the local holders as a very hopeful sign; but as an offset to this bit of encouragement comes the news from the provinces that the natives in the hemp districts, who stopped work about six months ago, the high prices paid for cleaning the staple allowing them to accumulate money enough to enable them to live in idleness for a few weeks, have been forced to labor again in order to meet their living expenses. Of course, their wages will be regulated by the state of the market, and, in a comparatively short time, hemp must begin to come in at what the "bears" consider a fair price. Local dealers will not pay the prices under which they loaded their warehouses last year with the expectation of selling to the American companies at $17, as they have no assurance that the syndicate can not hold out a year or two longer without buying if necessary. It seems hardly possible, therefore, to expect that the price will be held up much longer, and it has been confidently predicted that it will drop to $8.50 at least before the close of the present month.

The hope which has been, and is, sustaining the holders is that the supply in the United States will soon be exhausted, and that the syndicate will be compelled to buy, thus breaking their agreement with the English companies and opening the doors of the warehouses for the stored stock to flow out at good prices. There are many, however, of the opinion that they can not hold out until this occurs.

The American ship *Granite State*, which left here for Boston on the 7th of June, took 11,200 bales of hemp, nearly half of the total shipment for the quarter. The *Panay*, which has been here since the 11th of January, is still unchartered, and is the only American ship in the bay.

The total shipment of hemp to the United States for the past three months was 27,450 bales, against 20,387 for the March quarter.

ALEX. R. WEBB,
Consul.

UNITED STATES CONSULATE,
Manila, July 1, 1890.

INCREASE OF CUSTOMS DUTIES IN RUSSIA.

REPORT BY MR. WURTS, SECRETARY OF LEGATION, ST. PETERSBURG.

I have the honor to transmit herewith a cutting from the Journal de St. Petersburg of the 1st of September, together with a translation, giving the text of the ukase of the $\frac{16}{28}$th of August last raising the custom-house tariff 20 per cent. on some, and 40 per cent. on other, articles of commerce. This law was not unexpected, as it was known that some analogous measure was in contemplation awaiting a general revision of the tariff of the Empire, and it is limited by its first article to July 1, 1891, before which date it is expected that the work of revision will be accomplished. The provisional measure now put into operation is called for, it is stated, by the increase in value of the paper ruble, which has diminished the protection afforded by the present tariff. In this connection, it might be said that even a greater increase of the tariff might be justified, for the ruble has risen within the last few months to 50 per cent. over the quotations of three years ago, and present indications are that it will rise to par value before the end of the year.

The new tariff will be regarded abroad as prohibitory for a number of articles already enormously taxed at the Russian custom-house, and many of them are such as Russia can not produce, or, if so, of a quality so inferior as scarcely to be marketable; such, for instance, as wine, many articles of luxury considered by the educated classes as necessities, and others. Russia can not yet produce all its necessities, and to practically exclude them by increase of tariff is a questionable policy in a country so greatly dependent upon importations from abroad. The experiment now to be tried by the new tariff will test the advisability of the prohibitory policy in its application to Russia, and will be watched with deep interest by countries having direct trade with it.

GEORGE W. WURTS,
Secretary of Legation.

UNITED STATES LEGATION,
St. Petersburg, September 4, 1890.

UKASE OF THE EMPEROR.

[Inclosure in Mr. Wurts's report.—Translation.]

To the Minister of Finance:

In our unceasing solicitude for the development of the production of our country, we ordered you to proceed to a general revision of the custom-house tariff, to conform it really to the present needs of Russian industry, in order to protect it in a desirable measure and animate all its branches.

In the execution of our will numerous researches have been made and the necessary propositions have been elaborated; but, in view of the essential importance of the question, the examination of these propositions in legal order will demand a certain time. At the same time, the change which has taken place in the reciprocal proportion of the prices of the gold ruble and the credit ruble since the payment of duty in gold has enfeebled the protection which the tariff at present in vogue accorded to the productive forces of the Empire. In consequence, having found proper to conciliate from the present time the custom-house duties with the situation modified by the rate of exchange, we order, to wit:

ARTICLE 1. There shall be established until July 1, 1891, a supplementary entrance duty of 20 copecks in gold for every ruble payable on all merchandise imported over the frontiers of Europe, including the Transcaucasian ports of the Black Sea, with the exceptions indicated in articles 2, 3, and 4.

ART. 2. Pit-coal, peat-coal, charcoal, coke, and peat imported by the ports of the Black Sea and the Sea of Azof (article 15 of the tariff, sections 1*a* and 2*a*) shall pay for the same period a supplementary entrance duty of 40 copecks in gold for every ruble of duty to be paid.

ART. 3. These same goods, imported by the western land frontier and by the ports of the Baltic Sea (article 15 of the tariff, sections 1*b* and 1*c* and 2*b* and 2*c*), as also dried capers and olives, or the same salted or with oil, imported in barrels, in baskets, and every kind of recipient not hermetically sealed (article 51), laurel leaves, laurel fruit, galanga (article 69), coffee (article 70 and its observation), cacao (article 71 and its observation), spices (article 72 and its observation), and all kinds of tea (article 75 and its observation), shall pay the same duties as heretofore without any mutation.

ART. 4. Sugar (article 73) shall pay, without supplementary tax, until July 1, 1891, the duties established by our ukase of August 5, 1890.

ART. 5. The regulations decreed by articles 1 and 2 shall go into operation from the day of the publication of our personal ukase in the Bulletin des Lois, and the minister of finance is charged to communicate them to the custom-house officers concerned, in order that their application be immediate.

ART. 6. All goods which are in store at the custom-house offices the day when the telegram is received ordering the application of the present law shall be free from these additional taxes established by the present ukase; also goods concerning which the documents have been left at the custom-house offices of the frontier and of the ports in the course of the day when the telegram has been received and up to the usual hour of closing said offices.

ALEXANDER.

PETERHOF, *August 16, 1890.*

TRADE AND COMMERCE OF THE BAHAMAS.

REPORT BY CONSUL McLAIN, OF NASSAU.

GENERAL COMMERCE.

The subjoined table will show at a glance the course of general trade in the Bahamas during the past four years:

Year.	Imports.	Exports.	Total.
1886	$919,178	$740,604	$1,659,782
1887	928,436	640,210	1,568,646
1888	930,407	591,425	1,521,832
1889	854,148	635,137	1,489,285

From the foregoing statement it will appear that there has been a slow but steady decrease during several years in the commercial prosperity of this colony, the total volume of trade during 1889 being the smallest for a number of years. There has been a small increase in exports, say about $44,000, over 1888, while imports are $75,000 less.

TRADE WITH THE UNITED STATES.

The condition of trade with the United States may be presented as follows:

Year.	Imports.	Exports.	Total.
1886	$568,093	$605,511	$1,173,604
1887	670,016	547,860	1,217,876
1888	582,250	493,233	1,075,483
1889	605,475	528,882	1,134,357

This statement shows the gratifying fact that out of the total trade of the Bahamas with foreign countries, viz, $1,489,285, the United States in 1889 controlled $1,134,357, or over 75 per cent. It is also very pleasant to know that, notwithstanding the depression of trade in this colony, our country is more than holding its own share proportionately, compared with other nations, as appears from the following statement: Of the $44,000 of increased exports in 1889 before noted, over $35,000 went to the United States, only $9,000 going to other countries; and, while the general imports fell off during the year by $75,000, there was an increase of $23,000 in imports from the United States over 1888. There was a slight falling off in sundry articles of provisions, the local crops being fair; but this was more than made up by an increase in such goods as woolens, cottons, linens, silks, hardware, earthenware, etc., the value of such merchandise being $231,000 in 1889, as against $191,000 in 1888. The total trade of the United States with the Bahamas in 1889 was increased about $60,000 over that of 1888. All of which shows well in view of the serious commercial depression which has existed of late in this colony.

EXPORTS.

The exports of the colony are sponges, fruit, salt, woods, shells, turtles, etc.

Sponges.—The sponge industry is the most important one in the Bahamas, and the trade during 1889 was successful and prosperous, the declared value of sponges shipped being $252,000, as against $240,000 in 1888 and $230,000 in 1887. About 85,000 pounds less were gathered this year than last, but prices ruled higher and results were better. The United States takes most of the crop, 575,000 pounds of the 703,000 pounds gathered going thither. The value of that shipped to the United States was $212,000, leaving $20,000 for Great Britain, $16,000 for Holland, $2,500 for France, and $1,500 for Germany. The value of that invoiced through this consulate to New York dealers was $195,114.33.

Fruit.—Only two kinds of fruits are exported in any quantity, viz, pineapples and oranges. The home market consumes substantially all other fruits that are raised, except a few bananas and cocoa-nuts which find their way to southern ports. The number of oranges shipped in 1889 was 2,316,370, against 2,060,000 in 1888. The orchards have not yet recovered from the injuries done by the scale insect a few years ago. Prices were slightly better the past year, declared values being $14,800, against $9,545 in 1888. The pine-apple crop was very unprofitable, less than the usual demand prevailing, so that only 283,000 dozens were shipped in 1889, against 546,000 dozens the previous year. The crop was invoiced at $205,000 in 1888, but in 1889 only at $125,000. About the usual quantity of fruit was canned at the factories. The fruit trade is almost entirely with the United States.

Salt.—The salt industry, once so profitable, is scarcely worth mentioning any longer, extensive shipments to the United States being no longer profitable under our duty of 6 cents per bushel. The condition of the business is seen in the following statement: In 1884 there were shipped 382,000 bushels; in 1885, 238,000 bushels; in 1886, 184,000 bushels; in 1887, 137,000 bushels; in 1888, 222,000 bushels; and in 1889, 80,000 bushels.

Woods.—The cutting and shipment of dye and cabinet woods affords a moderate income to certain of the people. In 1889 the usual quantity was shipped, realizing good prices. The woods exported are logwood, brazi-letto, cedar, lignum-vitæ, mahogany, etc., nearly all going to the United States.

Sundries.—There is a moderate trade, mostly with ports in the Southern States, by small schooners, in shells, shell-work, marine curiosities of various kinds, and native baskets and hats.

AGRICULTURE.

Crops were good in 1889. Corn and vegetables are raised, which supply, in part, the home demand. The spirit of agriculture does not exist at present among the colonists, who prefer seeking a livelihood from the sea in sponging, turtling, fishing, and wrecking. This lack of interest, combined with the sterility of the soil, will prevent ordinary agriculture from becoming a profitable industry in this colony.

HEMP CULTURE.

The cultivation of the sisal plant for the production of fiber has now been added to the industries of the colony, and bids fair to become a source of much profit and prosperity. The people are greatly interested in the new business, and are embarking in it to the extent of their means. Foreign capitalists see money in it, and are buying up lands and setting out plantations in every direction. Beneficial effects are already arising from the introduction of foreign capital and the employment given to labor, while in the near future there is waiting very great advantage to this colony. Unless all signs fail and all reasonable calculations miscarry, the Bahamas are now entering upon a course of prosperity that will place them among Great Britain's most valuable possessions by means of this industry of hemp culture. There seems to be no reasonable doubt that within the next three or four years the exports of the colony will be doubled or trebled.

Having already furnished the Department with special reports on this subject, the last one being sent only last month (accompanied by samples of the sisal fiber), and being exhaustive on the present condition of this industry, it is not deemed necessary to add more to what has been said.

WRECKS AND CASUALTIES.

Several disasters, as is usual, have occurred to American vessels in these waters during 1889. During 1886 five American vessels were wrecked in the Bahamas; in 1887 the number lost was eight; in 1888 there were four; and in 1889 six were lost. The latter were as follows, viz: The schooner *Nellie A. Drury*, of Thomaston, Me., stranded on January 29, on a voyage from Baltimore to Cardenas with a cargo of coal; the schooner *Edward B. Leisinring*, of Philadelphia, on February 23, on a voyage from Philadelphia to Matanzas with cargo of coal; the brig *Tarifa*, of New York, on March 21, from New York to Vera Cruz with a cargo of crude petroleum; the schooner *John S. Moulton*, of Machiasport, Me., with merchandise, foundered April 10 at sea and her crew brought here in a passing vessel; the schooner *Kinsett*, of Providence, R. I., on May 9, bound from New York to Gibara in ballast; the brig *Daisy Boynton*, of New York, on December 9, bound from Clarence Harbor to New York with cargo of salt. Only two lives were lost in these disasters; the vessels were total losses; portions of the cargoes were in some cases saved. Fifty-seven destitute seamen were relieved during the year at this consulate.

NAVIGATION.

Eighty per cent. of the tonnage employed in the carrying trade of the Bahamas belongs to the United States. During 1889 there were 94 arrivals and departures of American steam-ships having a capacity of 145,208 tons and 155 sailing vessels with a tonnage of 16,071 tons. British vessels were represented by 11 steamers of 6,414 tons and 432 sailing vessels of 33,866 tons. In 1886 the tonnage employed in the trade of the colony was the same as at present, viz, 200,000 tons; but then the United States had 139,000 tons and British vessels 61,000 tons, while in 1889 American tonnage had increased to 161,279 tons and British had decreased to 40,280 tons. To-day we have 80 per cent. of the carrying trade of the colony, as also 80 per cent. of its exports and imports, which, considering that this is a British colony, is most gratifying.

MISCELLANEOUS.

Mail facilities.—The usual steam communication was performed during the year by the New York and Cuba Steam-ship Line (James E. Ward & Co., agents, New York), sailing under the American flag and making eighteen trips. The ships are good and the service satisfactory. Nearly all the export and import trade of the colony with the United States and Europe goes over this line.

Interinsular communication.—This has always been performed by small schooners, and, as some of the outer islands are over 400 miles from Nassau, the service is tedious and inconvenient. Legislative action was taken a year ago looking to the establishment of steam service between the islands, and tenders were called for, but as yet no responsible parties have made satisfactory proposals. Its inauguration, however, is only a question of a short time, and the colony will be greatly benefited thereby.

Ocean cable.—There is no telegraphic communication between the Bahamas and the outside world. The need for it is constantly felt; but, as it would not be a paying investment, capitalists will not become interested. When the islands become more prosperous, it may be built. Hopes are expressed in the meantime that the British Government may see fit to extend to this colony the line being laid between Halifax and Bermuda.

Banking.—The bank chartered last year by the legislature began operations in June, to the great convenience of the public, who had been deprived of all such facilities since the disastrous collapse of the Colonial Bank in 1885. Accounts are kept by the bank both in London and New York.

American visitors.—The number of visitors who come to Nassau during the winter does not increase. The advantages of climate are counteracted by the long sea voyage, infrequent communication, and want of cable—objections most serious to many people. Until these are overcome Nassau will not prosper as a sanitarium.

THE FUTURE.

The outlook for the Bahamas is most promising. They will derive an enormous benefit very soon from the hemp industry, which is to be their commercial and financial salvation, and prosperity to these islands means increased trade with the United States.

THOS. J. McLAIN, Jr.,
Consul.

United States Consulate,
Nassau, February 26, 1890.

COMMERCE OF HILO, HAWAII.

REPORT BY CONSULAR AGENT FURNEAUX.

I have the honor to submit my report to the Department for the fiscal year ended June 30, 1890.

GENERAL EXPORTS.

The declared exports to the United States for the year ended June 30, 1890, were as follows:

Articles.	Quantity.	Value.
Coffee ... pounds	100	$13.70
Hides (green) ... packages	196	525.88
Molasses ... gallons	20,470	2,047.70
Personal effects		2,129.50
Returned goods ... cases	2	35.50
Sugar ... pounds	17,325,398	959,590.46
Total		964,342.74

SUGAR IMPORTS.

Sugar being the leading article for export, I herewith submit a statement showing the increase in quantity and value over the preceding year:

Year.	Quantity.	Value.
	Pounds.	
1890	18,325,398	$959,590.46
1889	11,733,925	663.318.85
Increase	5,591,473	296,271.61

In regard to the above statement concerning sugar, it may be of interest to the Department to know that there are eight sugar plantations located in this district, yielding this season (approximately) 58,500,000 pounds, or about one-fourth of the crop of the Hawaiian Islands. Only two of these plantations ship their sugar direct; the remaining six ship by the way of Honolulu.

GENERAL IMPORTS.

Goods imported by plantations consist mainly of fertilizers, lumber, hay, and grain. The merchants of Hilo import general merchandise, the principal articles being lumber, hardware, dry goods, and groceries. The total value of imports for 1890 amounted to $180,304.17, against $167,468.93 in 1889, an increase of $12,835.24.

FREIGHT RATES.

The freight rates on sugar per 2,000 pounds are as follows: From Hilo direct to San Francisco, $4.50; from Hilo by way of Honolulu, $7.

The rates on general merchandise per ton are as follows: From San Francisco to Hilo, $5 and $5 for primage; from San Francisco to Hilo by way of Honolulu, $7.

PROPOSED WHARF.

A bill is now before the Hawaiian Legislature asking for an appropriation to construct a wharf on the east side of Hilo Bay. A wharf, such as contemplated, would greatly facilitate the loading and unloading of vessels, which, at present, is accomplished by lighters. Hilo Bay affords safe anchorage for the largest class of vessels. The entrance is broad, deep, and free from bar or other obstructions. Vessels of any size may safely enter at all times.

AMERICAN STEAM COMMUNICATION.

The San Diego Steam-ship Company propose running a line of steamers monthly between San Diego and this port. The agents or owners are Messrs. Livingston, Clarke & Co., of San Diego, Cal. The object of the company is to increase the commerce of California and these islands, and they hope to encourage other industries besides sugar. I am informed that the merchants of this place favor the steam line, and have guarantied their freight, as far as possible, for a term of two years.

The first steamer of the new line will leave San Diego for this port about the middle of September next.

TRADE OPPORTUNITIES.

In this connection, I may say, it is generally conceded that a diversity of industries will increase the wealth and importance of this island. Hawaii, of which Hilo is the principal port, contains an area of 2,500,000 acres. There are large tracts of unoccupied lands well suited to the culture of coffee, bananas, papayas, pine-apples, water-lemons, and other tropical fruits that would admit of transportation to the United States, where they would undoubtedly find a market. I am fully convinced that the introduction of steam communication will add materially to the importance of Hilo as a commercial port.

CHARLES FURNEAUX,
Consular Agent.

UNITED STATES CONSULAR AGENCY,
Hilo, August 18, 1890.

THE CITY AND STATE OF BAHIA.

REPORT BY CONSUL BURKE.

GENERAL EXPORTS.

The following table gives the official value of the general exports from Bahia for the years 1885–'89. These values are taken from the custom-house, and cover only such exported products as are subject to an export duty. It will be noticed that to the Argentine Republic, Austria, France, Italy, Portugal, and the United States the value of the exports was somewhat greater in 1889 than in 1888, while to the other countries mentioned the values were less in the year 1889 than in 1888.

Table showing the official value of exports from Bahia during the years 1885–'89, with the names of the countries whither exported.

Countries.	1885.	1886.	1887.	1888.	1889.
Argentine Republic	$30,156.36	$13,712.46	$77,884.39	$18,100.62	$39,384.17
Austria	30,867.53	250.62	28,096.37	35,800.19	37,785.58
Belgium	295,082.08	253,583.00	779,554.00	675,794.55	578,754.58
Chili	5,371.22	10,054.35	....	42,758.55	....
Africa (coast)	97,070.49	47,561.03	52,013.69	42,758.55	20,332.31
Denmark	2,875.00	....	....	....	....
France	944,337.50	701,859.30	2,040,390.21	847,989.86	1,073,071.66
Germany	3,150,294.86	3,701,423.41	5,657,470.02	2,890,146.62	2,051,247.87
Great Britain	896,758.33	813,039.13	1,211,786.95	903,136.56	656,505.66
Italy	34,654.09	67,754.15	34,543.62	30,419.35	43,014.49
Portugal	62,792.36	108,574.09	130,552.47	36,179.48	90,958.05
Spain	4,255.50	....	....	36,577.41	....
United States	1,410,878.25	1,875,878.00	1,910,371.00	286,023.39	314,685.71
Uruguay	70,222.60	36,307.60	60,834.88	50,213.22	36,185.48

The above table, it must be remembered, is from the books of the customs officials, and demands the following explanation:

The value of the products exported to the United States in 1889 was $296,694.89 less than the entire value of all the products, except sugar, that were shipped in 1889, according to the record in this office. The invoice book shows that during the time or the year referred to, instead of $314,685.71 being the value of the products shipped, the declared value was $611,380.60. Add to this the value of the 277,448 bags of sugar, viz, $1,043,559.33, and we find the entire value of the products shipped to the United States during the year 1889 to be $1,654,939.93. Of the 9,894,840 milreis' worth of products shipped from this port to foreign countries during 1889 and subject to export duty, Germany, according to this table, purchased 4,103,494 milreis' worth, or nearly one-half. As tobacco is the chief product shipped to Germany, nearly the entire value of the exportation is in this article. With sugar considered among the exported values, the United States ranks second to Germany in the value of the articles received from this port, the total value for 1889 being about 3,309,879 milreis.*

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* 1,000 reis=1 milreis; 1 milreis=54.6 cents.

EXPORTS TO THE UNITED STATES.

As may be seen by comparing the statistics for the year ended June 30, 1890, with those for the year ended June 30, 1889, the value of the exports to the United States will be found to be less during the year given in the inclosed table than during the preceding year. This falling off is due to the fact that during the last fiscal year but very little sugar was shipped from this port, owing to the almost entire failure of the sugar crop, but 26,000 bags being shipped to the United States for the time embraced in the table; while for the fiscal year ended June 30, 1889, there were shipped from this port to New York or other places in the United States 271,237 bags, and 110,464 bags more from Aracaju, in this district, making the sum of 382,701 bags, as against the 26,000 bags shipped during the year ending June 30, 1890.

The shipment of cocoa also fell off during the last fiscal year, its declared value being less by $70,751.22 than during the preceding fiscal year. The value of carbon shipped during the last fiscal year was $101,676, as against $22,910 the preceding year. The value of skins shipped increased from $67,517 to $292,238. It was only in 1888, however, that this business was begun in this state as a business. Little had been done previously in this section of the country. Like tobacco, which is cultivated by a great number of the people of the state (being raised in small patches), it is a certain source of revenue for those who can live on small incomes, as in the raising of goats, particularly, which is engaged in by a large number of persons through the state.

Declared exports from Bahia to the United States during fiscal year 1890.

Articles.	Quarter ending—				Total.	
	September 30, 1889.	December 31, 1889.	March 31, 1890.	June 30, 1890.	Quantity.	Value.
					Kilograms.	
Balsam	....	$724.88	....	....	952	$724.88
Brava root	....	....	....	$494.47	5,280	494.47
Brazil-wood	$2,085.69	9,711.56	....	1,523.18	481,813	13,320.43
Castor-oil bean	....	....	$201.46	....	....	201.46
Carbon (diamonds)	36,989.20	20,518.37	18,497.20	25,671.39	....	101,676.16
Cocoa	93,016.58	62,105.34	55,239.39	45,887.47	1,048,941	257,248.78
Goat-skins	37,460.97	37,994.96	100,225.83	116,556.20	542,952	292,237.86
Marmão	96.25	....	....	....	65	96.25
Piassava	2,461.80	....	246.03	2,966.55	29,590	5,674.38
Rubber	8,680.37	959.21	5,572.99	1,523.18	9,762	16,735.75
Stick handles	....	175.00	201.46	252.00	....	628.46
Sugar	....	....	....	47,479.16	136,301	47,479.16
Tortoise shells	....	....	10.00	....	....	10.00
Coffee	....	3,070.82	....	....	10,860	3,070.82
Rose-wood	....	....	177.50	....	3,450	177.50

GENERAL IMPORTS.

Table showing the official value of imports to Bahia during the years 1885–'89, with the names of the countries from whence the imports came.

Countries.	1885.	1886.	1887.	1888.	1889.
Argentine Republic	$440.28	$82,114.36	$1,821.93	$6,830.24	$326,701.38
Austria	2,228.67	296,678.80	333,457.40	366,579.73	511,765.22
Africa (coast)	61,610.25	59,644.18	116,186.78	66,455.98	97,436.86
France	1,252,512.66	1,301,055.26	1,829,633.88	1,431,839.09	1,467,228.40
Germany	1,417,165.60	1,185,500.54	2,028,194.89	1,372,335.70	1,512,600.69
Great Britain	5,004,709.75	4,796,532.87	7,820,573.86	5,609,999.65	3,646,348.45
Holland		4,387.00	5,297.25	2,013.50	1,311.66
Italy	14,847.66	34,352.68	62,019.77	39,935.92	16,765.23
Portugal	1,171,190.43	785,658.52	1,230,313.76	863,393.76	8,866,637.35
Spain	28,831.30	7,645.35	31,367.53	4,094.19	3,488.11
United States	1,052,719.55	1,021,788.58	1,886,822.36	1,434,604.85	1,289,545.72
Uruguay	78,697.50	798,843.27	925,028.33	1,646,640.19	457,756.56
Belgium	98,962.42	106,455.81	159,216.94	82,720.00	69,067.46

It is seen that from the United States there were 2,479,091 milreis' worth of goods purchased, which is less by 390,119 milreis than was purchased in 1888. While Bahia exported to the United States in 1889 some 600,000 milreis' worth less of products than in 1888, because of the shortage in the sugar crop, the United States exported to Bahia 390,119 milreis' worth less of goods in 1889 than in 1888, because, perhaps, of the hard times prevailing in Bahia and the consequent inability to purchase as largely, or perhaps because of higher freight rates or other cause or causes. It will be observed that the total importation to this port in 1889 was but 20,473,107 milreis, as against 26,754,800 milreis in 1888, or a falling off of upwards of 6,000,000 milreis—a tremendous falling off, which, of course, must have affected the trade more or less of the countries sending goods to Bahia, that is, their trade with Bahia. The difference in the values of the imports from England in the years 1888 and 1889 is by far the greatest, it being about 4,000,000 milreis less in 1889 than in 1888.

Austria's exports increased in 1889 about 400,000 milreis over 1888; this increase was mostly in flour. The Argentine Republic also showed an increased exportation to this port in 1889 over 1888 by some 600,000 milreis, mostly in grain and hay, or what is called alfalfa.

The financial condition of the state of Bahia may be expressed in the following figures as regards its importation and exportation for 1889: Value of importation, 20,473,107 milreis; value of exported products, 9,894,840 milreis; leaving a deficit of 10,578,267 milreis, which adds about £1,000,000 more to its previous debt. Of course, this will be somewhat reduced by the taxes levied in other directions, which are here mentioned, with duties.

DUTIES AND TAXES IN BAHIA.

Duties.—Duties in Bahia are very high, and are levied not only by the General Government on articles imported from foreign countries, but are also collected on articles coming from any other state in Brazil. This law was passed by the legislative assembly of the province of Bahia in September, 1889, under the Empire, and still continues in force under the Republic. Whether it will be amended, retained, or repealed after the elections under the first Congress remains to be seen. That it should be repealed is very clear, as it burdens commerce between this and other states, obstructs business relations, prohibits in a great measure the growth and expansion of trade, subjects business men to hardships and annoyances which can not but be injurious to commerce and trade, as well as agriculture, too. So it is becoming a question of not how to do business commercially, but how to overcome the difficulties and remove the obstructions piled up in the way of doing business. This, among other causes, is driving business and business men from Bahia.

Five per cent. duty is to be paid by law on all goods or merchandise brought to this from any other state, except as follows, viz: Cotton goods, which pay 10 per cent.; wine, which pays 200 reis per liter; vinegar, 50 reis per liter. Oil of mammao and aguardiente pay (*) per pipe. Sugar, except that from the neighboring state of Sergipe, pays 50 reis (about 2½ cents) per kilogram.

I should have mentioned that about a year ago an increased tariff was levied on manufactured cotton and woolen goods (where woolen goods are manufactured), while another increase of 20 per cent. is now under consideration for the protection of home industries. On the goods here mentioned the change will be as follows: The present duty on blue drills is 1 milreis per kilogram; the new duty, if adopted, will be 1.2 milreis. Cotton blankets now pay 540 reis; under the new duty they will pay 650 reis. Cotton undershirts, that now pay 3 milreis per dozen, under the new tariff will pay 4 milreis; white shirtings, now paying 1 milreis, will pay 1.2 milreis. Woolen material in use for outside wear, for coats or cloaks, will pay 1.1 milreis, instead of 960 reis per kilogram, as now. Plain flannels go up from 2.2 milreis to 2.5 milreis per kilogram, and twilled from 3.6 milreis to 4.2 milreis. The very common woolen blankets are increased from 540 reis to 640 reis per kilogram; other qualities, from 1.3 milreis to 1.5 milreis per kilogram.

The duty on kerosene will be decreased 600 reis per case. The general duty, or, rather, the duty imposed by the General Government, is 2.94 milreis per case; but, with the other duties imposed (state, municipal, etc.), it is 3.43 milreis, all told. Of course, this projected increase is in addition to the 20 per cent. duty to be paid in gold.

Taxes.—Under the same law all offices or agencies of steamers pay to the state government a tax annually of 30 per cent. of the amount paid for the rent of their offices; commission and exchange offices, 25 per cent. of their annual rental; commercial houses in general, from 20 to 30 per cent.; retail commercial houses, 15 per cent.; trapiches and warehouses, 15 per cent. All these taxes are annual.

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* Not decipherable.

Taxes on manufactures by the same law are: Snuff, from 1,000 to 4,000 milreis; hats made by steam, 2,000 milreis; wine, 2,000 milreis; cigar factories, from 150 to 1,200 milreis; woven cloth, 500 milreis; refineries, 50 to 500 milreis; brewers, 200 milreis; soap, 50 to 200 milreis; lime, 50 to 100 milreis; vinegar, oil, and candles, from 50 to 100 milreis.

Every bank or other organization of a financial character pays in tax 1 per cent. of its profits. Every lawyer who practices in this city and every physician is taxed 25 milreis annually. In interior cities and towns the tax is 15 and 20 milreis. Every traveling peddler, whether pack or by donkey, is taxed 100 milreis annually. One line of street-cars pays 3,000 milreis, another 1,600 milreis, a third 1,400 milreis, and a fourth seems to pay no tax. Any proprietor of a livery stable pays from 300 to 600 milreis tax annually, also. Any person keeping a private carriage has a tax of 30 milreis to pay; any truckman pays 15 milreis; hand-cart, from 5 to 10 milreis. Every owner of a launch pays 30 milreis for each one he owns, and if he employs it in transporting goods between ports he pays 400 reis for each ton so transported. Every butcher pays 3 milreis for each cow, calf, or bullock killed for consumption in this city. A tax of 1,000 milreis must be paid by any insurance company establishing itself in this province, except such company furnish a fire-engine.

Emancipation tax.—In addition to the duties collected by the General Government and the interstate duties on all goods or merchandise entering at this port, a duty or tax of 5 per cent. under what is called the "emancipation fund" is also collected. This emancipation tax should have ceased when the slaves were freed, the intention or design of the tax being to compensate the slave-holders and bring about gradual emancipation under the law passed in 1887. Owing to the spirit of rivalry between the two old parties on the slavery question—the one seeking to retain supremacy and control the administration, the other endeavoring to obtain the power in the country—the abolition of slavery was effected in May, 1888, shortly after the 5 per cent. emancipation fund bill was passed and much sooner than was anticipated when this 5 per cent. emancipation law went into effect. Though the slaves were emancipated the 5 per cent. emancipation tax is still collected.

Export duties.—In addition to the foregoing duties and taxes—general, interstate, emancipation, and state—there is also an export tax on nearly all products but sugar; then there are municipal taxes also.

Municipal taxes.—According to the law passed by the provincial legislature and referred to above, any municipal council in this state can collect, on all articles or products proceeding from the town or city where such municipal council is created and passing to any other town or municipality in the state, such taxes as are prescribed by the law, whether these products are to be used in the state or are to be exported. This intertown tax law is said to be unconstitutional. Still, it is enforced, and business suffers thereby. Yet, with all these different methods of raising money to carry on the affairs of the state government, the state is in debt.

The value of the imports being greater than that of the exports, nothing can be expected from such a state of things otherwise than a balance in favor of foreign nations.

What, then, can be done; what course pursued by the state or the nation to remedy this unfortunate condition of affairs in state and nation? The duty on imports might be reduced, and, in some instances, removed altogether. Very well—supposing it be done—then how can the Government raise its revenue? What methods will it adopt, can it adopt, for supporting and carrying on its affairs? It does not tax the land; it derives no income from this source. Incomes remain untaxed, and personal property also. The condition of the agriculturist to-day in the state of Bahia is such that he could not pay a tax on his land even if it were imposed, simply because fully two-thirds of the sugar estates are under mortgage and would not realize, if sold, even the value of the mortgage. Sugar is one of the principal articles produced in this state, the main one being tobacco.

IMMIGRATION AND AGRICULTURE.

In truth, what is mostly needed—for this section of the country at least—is the right kind of immigration. A diminishing of duties, both import and export, of interstate duties, also, and the entire abolition of the system of levying taxes on produce or articles of any kind proceeding from one town or city to another in this state would doubtless be highly beneficial to the people of this country. The duties on imports are not levied to protect home industries, let it be remembered. The main reason for these duties and taxes is to raise revenue to carry on the affairs of government. It is true the present condition of this country is not the usual, not the normal, condition. The Government's course on the emancipation question in abolishing slavery without compensation to the owners, its subsequent course under the Liberal Government in turning itself into a paternal government by loaning money for a term of years to sugar planters, hoping to re-establish and build them up, while it exhibited a humanitarian spirit, can not be said to have been governed or directed by a wise financial policy. Some four months before the revolution that overthrew the Empire speculation began to spread like a tidal wave over the country. The revolution checked, for a time, the further strides of restless speculators. Again they began in six weeks or two months after the revolution to rush along with the same rashness that characterized their neighbors the Argentines. The unwise and reckless speculative policy of the Argentines bore its bitter fruit; and, unless a halt is called soon, it is not unlikely that Brazil will have an experience similar to that which so recently overtook the people of the Argentine Republic. Banks and banking institutions are being so multiplied, companies and enterprises of so many different kinds are being coaxed into existence with such an amount of capital that the patriotic Brazilian citizen might well cry out, when he considers the enormous foreign debt of his country—and continually growing larger—where will it all end? One hundred and seventy-five enterprises of different kinds—banks, companies, societies, etc.—organized in Rio de Janeiro alone from July 1, 1889, to July 1, 1890, with a capital of 950,755,000 milreis, or nearly $500,000,000! No wonder the thoughtful, patriotic Brazilian is wondering where and how all this will end. As said, immigration of the right sort would prove the greatest boon for the country; but whether this section will receive the right kind, or any kind, is the subject of grave doubt. If the interior could be settled and the high table-lands and mountainous tracts could be occupied, the climate would there be congenial for a European. But there are so few railways and no good highways leading from the interior to the coast towns, in fact, no highways at all, that it would be next to impossible for a farmer to get his produce to market. Yet, notwithstanding all these obstacles, energetic action on the part of the state authorities would accomplish much in this direction. In and about the city of Valença, about 40 miles from this place, the late governor established what is called a *burgo agricola*, or an agricultural village. Each family (emigrant) would receive a lot of land, such as the head of the family might desire to select, for which he must pay a certain price within the space of ten years. A house would be put up on the land selected, food would at first be furnished for the family if required, and agricultural implements also furnished, together with medical aid when necessary. The society for promoting this enterprise would buy from those farmers so established all the products of their farms except that needed for their own support and would pay them the highest market price. These *burgos agricolas* were to be inaugurated as rapidly as possible all over the state where desirable. A certain sum of money was appropriated to carry on the work. Since the 26th of April, when the present governor was appointed, Dr. Pereira's plans, I am informed, have been permitted to fall into desuetude. Of course, the one great drawback to the agricultural development of this state, and others of Brazil, also, is the lack of railways, there being no means of communication excepting by river, winding stream, donkey trail, or foot-path. To some of the interior towns there is a mail but once a fortnight, to other places three times a month, others once a week, etc.

There is still another drawback to the agricultural development of this and other northern states of Brazil in the *secca*, or drought, that pervades or spreads over a large area of this state. In 1889, from April to September, about 40,000 milreis were raised by subscription and granted by this state government to distribute among the people of some forty-five towns to relieve them from death by hunger and thirst. Were the proper steps taken, irrigation might be employed in these dry districts with results, no doubt, that would prove highly satisfactory. Dry districts might be reclaimed and made to teem with growing crops of various kinds, for, it is said, if in these rainless tracts a digging of from 2 to 4 feet be effected, water may be found; but the dwellers on these tracts, it is said, are too indolent and too shiftless to exert themselves to procure what costs even so little effort. Even in the district of Orobó, which Mr. Mawson mentions in his report (herein copied) as a fruitful district, with rich soil and plenty of water, some 60,000 milreis have, within two months, been raised by subscription in this city and donated by the state government and sent right into this Orobó district to relieve the famished, suffering, starving people of the district. And yet Mr. Mawson, in his report, stated that the tract contained plenty of water. It is more than likely that Mr. Mawson was over the territory during the wet season, and it must have been, too, some four or five years back, before the *secca*, or drought, began; for, it is said, but very little rain has fallen in parts of the interior of this state during the past four years, though, as a rule, places along the coast, at least in this state, are usually well supplied with rain.

RAILWAYS OF BAHIA.

The Bahia and San Francisco Railway was commenced in 1855 by an English company with a provisional capital of £1,800,000, the guaranty by the Government to the company being 5 per cent. on the capital, the concession extending for thirty years. The road, beginning at Bahia, extends to a town called Alagoinhas, a distance of 124 kilometers towards the interior. This part has been in operation since 1863. Since then there has been built a branch from Alagoinhas to Timbo, farther towards the interior, a distance of 82 kilometers. From Alagoinhas the Bahia and San Francisco Railway is being extended under the name of the "Prolongamento of the Bahia and San Francisco Railway." The project is to build it to a town called Juazeiro, on the San Francisco River, in the northwestern part of this state. The Prolongamento is already constructed to Villa Novada Rainha, a distance of 321 kilometers from Alagoinhas. From Villa Novo to Juazeiro the work of the road is being pushed, and when finished will cover a distance of 132 kilometers. The whole distance then over the line from Bahia to Juazeiro will be 576 kilometers, the road running in a northwesterly direction through the state of Bahia to the San Francisco River. There are about thirty locomotives in use on this line and the Timbo branch; all are of English manufacture, with the exception of two or three of Baldwin's, recently brought out, I am informed.

The Bahia and Minas Railway begins at Caravellas, on the coast, in this state, and extends, or will extend when completed, to Theophilo Ottoni, in the state of Minas-Geraes, a distance of 380 kilometers. The capital of this company is 12,000,000 milreis. There are on this line six locomotives, of English manufacture also. The distance constructed and in operation is about 150 kilometers, to Aymores. A subvention is given to this road by the government of the state of Bahia which was originally about £8,000 per year, and I suppose it is the same now.

To the kindness of the British consul at this port, G. A. Stevens, esq., I am indebted for the following relative to the Imperial Central Bahia Railway. The information was given to Mr. Stevens by Mr. Joseph Mawson, who negotiated the concession for this railway.

The railway has its head office at San Felix, situated on the river Paraguaçu, about 40 miles from Bahia, the capital of the state. The total length of the railway is 200 miles—

170 miles of which form the main line running west from San Felix through the center of the state into the highlands, or *alto sertao*, of the interior. The road passes through a tract of country very varied in its products. This variety of products is owing both to diversity of soil and difference of temperature. While on the low-lying land near the coast the principal articles of agriculture are sugar, tobacco, maize, rice, mandioca, etc., the high table-lands of the interior, with a cooler climate, furnish, in addition, cotton, coffee (of excellent quality), wheat, rye, and other cereals, etc. The natural productions of the center of the state are of great importance. They include India rubber (of the *Hancornia speciosa*, which is found over a very arge extent of country), rose-wood and many other fine timbers, vegetable oils, gold, silver, copper, galena, iron-stone of a high order found in places widely separated, as are also diamonds. Saltpeter is extracted in many places for local manufacture of gunpowder. Salt is found and prepared for use at a place called Villa Velha, on the low-lying lands at the foot of the sierra of the Cidade do Rio do Contas, at Lugo Timotheo also, and, doubtless, in other parts. Alum shale exists in large quantities near Riacho de Santa Anna. Rivers and streams are numerous, both in the north (Orobó and Mundo Novo) and in the south (Rio de Contas and Brejo Grande), and there is everywhere an abundance of water-power accessible. The districts of Orobó, Sincorá, and others enjoy a fresh temperature or subtropical climate, because of their elevation. The table-lands of the last-named districts are about 3,000 feet above the level of the sea and are singularly healthy, while the soil is adapted for all the varieties of produce already mentioned. The price of land in these districts is very low, costing at the present time not exceeding £200 to £300 a square league (16 English miles). In the northern part of the state of Bahia (Mattas of Orobó) the richness of the soil is proverbial, water is plentiful, and fevers are almost unknown.

The Government lands here are very extensive, probably not less than 400 square leagues, and already they are being taken up by private enterprise for the settlement of emigrants in colonies. The suitability of all the districts mentioned for colonization by Europeans has long been known; but the distance from the markets and from the port of Bahia, together with the total absence of means of transporting the produce, has hitherto prevented the development of these places. The population is necessarily thin and scattered.

The Central Bahia Railway Company, having obtained from the Government of Brazil the privilege, with a guaranty for the construction of the Orobó branch (80 miles) and the Rio de Contas extension (about 110 miles), have made the preliminary surveys of these proposed new lines and are preparing to effect the final surveys to enable the company to enter upon the necessary negotiations with the Government of Brazil for their construction.

This railway had, according to the last report I have seen, some twenty-five locomotives, the greater part of which came from the Baldwin Locomotive Works, of Philadelphia. With a branch belonging to the Central Bahia Railway, viz, extending from Cachoeira to Feira de Santa Anna (45 kilometers), and another branch from Nazareth to Capella San Antonio (34 kilometers), and still another from Santo Amaro to Jacú (some 36 kilometers), the number of kilometers of railway in the state of Bahia constructed and in process of construction is known, according to the best information I have been able to receive on the subject, to be about 1,800 kilometers.

With reference to the Santo Amaro and the Nazareth railways, I would mention that neither one, I am informed, pays expenses; and, as the state guarantied a certain sum every year to these roads, it now borrows money at 10 per cent. to pay the guarantied sum at 6 per cent. to these roads. Such, I am informed, is the case.

The Bahia and Minas Railway is said to be of much greater benefit to Rio de Janeiro than to Bahia, on account of most of the produce going through

Minas to Rio de Janeiro. To the state of Bahia it is said to be a heavy load to carry.

STREET-CAR LINES.

The first one built was the Transportes Urbanos line, commenced in 1864. In connection with this line an hydraulic elevator was constructed and opened for use in 1874. This elevator passes through a space of 197 feet in going from the upper to the lower town or the reverse. It is certainly a much more convenient method of going from the lower to the upper town than to go up on foot, as people were formerly compelled to do.

The Linha Circular line also passes through the city, following the line of the Transportes Urbanos, being in extent about 15 kilometers. In connection with this line there is an inclined plane for conveying passengers from the lower to the upper town. When the line was first constructed an inclined plane was put up; but the car came down with fearful velocity not many months after its construction, which caused the inclined plane to be so destroyed that it went into disuse. This year, however, it was rebuilt, and is now in running order. This plane has a 62½ per cent. grade. The fare from the upper to the lower town or the reverse by the elevator is 100 reis; by the inclined plane, 60 reis.

The Trilhos Centraes also is in the upper city, but extending over a different part than is traversed by either of the other two mentioned. The distance of the main line of this company is 15½ kilometers.

The Vehiculos Economicos line runs through the lower town in an opposite direction to the others, extending along the bay shore towards the head of the bay.

The price or fare by the Linha Circular is 100 reis from one end of the line to the other; by the other lines it is from 100 to 400 reis, according to the distance traversed.

TELEPHONES.

Telephones were first put up in Bahia in 1884, under a concession obtained by Mr. E. P. Wilson, jr. There are in use about three hundred. The Government has the gratuitous use of fifteen, while the others rent for 15 to 20 milreis per month.

TELEGRAPHS.

Telegraphic communication exists between this city and many of the larger towns of the state, as well as extending to towns in different parts of the country, the rates per word being from 100 reis to 1 milreis.

WATER-WORKS.

Upwards of thirty years ago a French company obtained a concession to supply water for the city by means of hydraulic machinery, distributing it through different parts of the city in lead pipes. The water is brought to the city through canals from a river and some small lakes some distance and stored in reservoirs, from which the supply—a quantity not exceeding 25 barrels per month per house and costing 9 milreis—is obtained.

SEWERS.

Within the past month the government of the state of Bahia has made a contract with a French company, Messrs. Milanez & Metzger, to construct sewers throughout the city, which, up to this time, has had none, on the following terms, viz: The right of the company to collect, for a term of fifty-one years, from property owners in the city the sums herein stated: Each person having property valued at from 121 to 300 milreis must pay annually 24 milreis; if valued at from 301 to 600 milreis, 36 milreis annually shall be collected; if the value is more than 600 milreis, the sum of 48 milreis annually shall be exacted. I have heard it estimated that there are ten thousand houses in the city to which the sewerage system will apply, and the further estimate that the entire cost will be about 200,000,000 milreis, or, say, $100,000,000—an exorbitant sum, say the people and the newspapers in general; but, though protest after protest has been made, the governor of the state, having the privilege of making the contract, made it, regardless of such protests.

COTTON-MILLS.

Though there are cigar factories, a match factory, two or three small breweries, a vinegar factory, soap factories, shoe factories, and others, the principal industry in the state is the manufacture of cotton goods, mainly of a coarse texture, used only by the lower classes. Sacking is also manufactured, and there is in process of construction a jute-mill. There are in the state ten cotton-mills, all of which have orders to fill at all times. The chief one of these cotton-mills is but a short distance from this city, at Itapigipe, built in 1885, and now controlled by a Brazilian company, though put up by an English company. The cotton used by this mill, called the Plataforma Mill, is brought from Maceio and Paryiba, states lying to the north of Bahia. From 20,000 to 25,000 kilograms of cotton per month are used by this mill. The cotton costs from 4 to 6 milreis per arroba (an arroba being about 32 pounds). There are seven thousand spindles in operation and some three hundred and seventy-five hands employed. There are manufactured in this mill, besides the coarse material manufactured in the other nine mills, calicoes, fine cloths, stripes and checks, blue drills, damasks, napkins, bed covers, towels, and hose. It is designed to put up works for prints in a short time. All the articles of manufacture are sold in the state. In fact, nearly all the goods are made to order, with the mark and name of merchant upon the goods. The width of the cotton goods preferred by the people of the interior is 26 inches, and it is accordingly manufactured as parties purchasing prefer. Fine cloths are made from 24 to 32 inches in width, though they can be made 36 inches wide; length of longest piece, 35 meters; amount manufactured, about 9,500 meters per week; hours of labor per day, ten; wages of overseers, from 2½ to 5 milreis per day; wages of others, from 1 to 2 milreis per day; cost of living for the native employés, from 500 reis to 1 milreis per day; average cost, perhaps 750 reis. Houses for employés are owned chiefly by the company, each house renting for from 6 to 20 milreis per month. Though the houses are small, the employés, who are mostly negroes and of a mixed character, occupy but little space evidently, since as many as thirty-two persons have occupied one room at the same time, as I am informed. In the case of sickness of employés, the company's physician attends, gives advice and medicine, for which 4 per cent. of the wages of the person so attended is deducted. The coal used is brought from England at a cost of about 22 milreis per ton.

Of the other six factories in this city, the San Salvador is perhaps the largest, having some eighty-five looms and about one hundred and seventy-five operatives, while the goods made are in general of a coarse quality. There are two mills in Valença, a small city about 40 miles from this place, called the Amparo and the Todos os Santos, the former having about one hundred and seventy-five looms and employing three hundred hands, the latter with about seventy looms and from one hundred and forty to one hundred and sixty operatives. There is another at Cachoeira with one hundred and fifteen looms and some two hundred hands.

CUSTOM-HOUSE SALARIES.

Table showing the number, classes, salaries, and gratuities of the employés of the custom-house at Bahia for 1890.

Class.	Salary.	Gratuity.	Total for each employé.	Total for each class.
	Milreis.	*Milreis.*	*Milreis.*	*Milreis.*
Inspector	4,800	4,200	9,000	9,000
Chiefs of section	3,200	2,800	6,000	12,000
First copyers	2,100	1,700	3,800	22,800
Second copyers	1,600	1,400	3,000	45,000
Third copyers	1,200	900	2,100	31,500
Apprentices	720	360	1,080	10,800
Treasurer	2,800	2,600	5,400	5,400
General watchman	1,200	1,200	2,400	2,400
Guardsman	3,200	2,800	6,000	6,000
Assistant guardsman	2,000	1,600	3,600	36,000
Confrerentes	2,800	2,800	5,600	44,800
Door-keeper	1,800	1,400	3,200	3,200
Assistant door-keeper	1,000	800	1,800	1,800
Messengers	720	360	1,080	6,480
Administrator of merchandise	2,600	2,400	5,000	5,000
Assistant administrator of merchandise	1,600	1,200	2,800	2,800
Watchman of merchandise	1,600	1,200	2,800	19,600
Commanders of guards	1,600	800	2,400	2,400
Sergeants of guards	1,000	500	1,500	4,500
Guards	800	450	1,250	62,500

BANKS.

The Brazilian banks are as follows: Banco Emissor of Bahia, capital 20,000,000 milreis; Banco da Bahia, capital 12,000,000 milreis; Banco Mercantile, capital 8,000,000 milreis; Caixa Economica, capital 4,000,000 milreis; Marinho & Co., a private bank. The English banks are the London and Brazilian Bank (limited) and the English Bank of Rio de Janeiro. The head offices of these are in London. The Brazilian banks have paid dividends varying from 6 to 9 per cent. The English banks pay larger dividends.

SCHOOL STATISTICS.

The following table shows the work, in this connection, of Senhor Archimimo Soledade:

School districts in the state of Bahia.

Districts.	Population.	Number of school age.	Number enrolled.	Average daily attendance.	Number of schools.			
					Male.	Female.	Mixed.	Total.
City of Bahia	162,065	25,606	3,314	2,210	31	36	4	71
Cachoeira	156,482	24,567	1,187	1,401	32	24	7	63
Santo Amaro	98,324	15,436	1,309	873	20	19	7	46
Feira de Santa Anna	68,887	10,812	1,045	697	16	10	....	26
Alagoinhas	58,026	9,110	695	464	9	10	2	21
Rio de Contas	68,742	10,792	327	221	19	9	3	31
Nazareth	62,399	9,859	1,442	963	24	24	9	57
Carinhanha	58,654	9,267	217	141	8	3	....	11
Campo Largo	46,619	7,872	221	152	6	3	3	12
Itapicurú	46,619	7,839	377	241	12	6	2	20
Laoras Diamantinas	50,657	8,003	204	145	10	3	4	17
Inhambupe	38,366	6,023	405	271	5	6	2	13
Monte Santo	28,185	3,954	395	262	9	3	....	12
Caetité	34,604	4,432	531	351	9	5	2	16
Brejo Grande	21,161	3,322	122	82	7	2	3	12
Conde	24,931	3,914	318	230	7	8	2	17
Villanova da Rainha	35,365	5,551	381	246	4	3	4	11
Joazeiro	32,824	5,153	305	211	9	2	....	11
Machaubas	47,509	7,458	108	91	6	3	....	9
Rio de S. Francisco	19,702	5,001	152	102	6	5	3	14
Abrantes	28,188	4,425	381	220	9	9	1	19
Areia	36,188	5,681	323	249	5	2	1	8
Valença	25,143	2,947	452	302	4	2	4	10
Taperoá	14,611	2,292	456	310	6	6	1	13
Ilhéos	19,765	3,103	92	61	6	1	1	8
Camamú	28,483	4,471	438	292	9	8	....	17
Camavieras	12,171	1,010	219	143	7	5	3	15
Alcobaça	8,647	1,357	255	157	2	2	....	4
Caravellas	12,976	2,037	248	143	6	3	1	10
Pureficacao	49,839	7,823	90	61	7	5	3	15
Camisao	49,452	7,763	339	226	6	3	....	9
Geremobao	44,343	6,961	153	102	7	4	....	11
Maracás	24,369	3,725	87	53	3	1	3	7
Monte Alto	25,449	3,995	127	83	4	2	3	9
Victoria	26,975	4,235	120	76	4	1	....	5
Santo Antonio da Barra	52,993	8,214	115	71	4	2	1	7
Jacobina	36,065	5,662	676	462	8	5	....	13
Urubú	28,070	4,406	202	141	4	2	1	7
Chique-Chique	40,578	6,370	205	144	12	4	....	16
Total	1,769,259	277,881	19,135	12,757	362	251	80	693

The above table gives information of such a character as can not fail to be of interest as bearing upon the public instruction of this state. When Dr. Momoel Victoriano Pereira was governor of this state the information given in the table was obtained by Senhor Soledade, at the instance of Dr.

Pereira, in order that he might be able to inaugurate a reform in the school system throughout the entire state—a thing which no one who will read this table will attempt to say is an unnecessary thing. He thoroughly realized the necessity of urgent reform in this respect. He thought that one of the first things, one of the most essential things, for the state to do is to provide for the education of the children of the state. Accordingly, rules and regulations were drawn up relating to public instruction, and a recommendation was made by His Excellency that the sum of 5,500,000 milreis be expended for the ensuing year in the building of suitable school-houses, the employment of qualified teachers, and the enlarging of the two normal schools already established in this city. But he was forced to resign before carrying out his much-cherished reform. Within two weeks, however, the present governor, da Fonseca, has taken up the work that ex-Governor Pereira laid aside on his retirement from office.

It is to be hoped that the work will be pushed with the same zeal that characterized Governor Pereira. All of these districts, or rather each one, comprises several towns and covers a considerable area, the area covered by the city of Bahia being much less than any of the others. Yet in the city of Bahia there are but two buildings put up especially as school buildings. Of the other schools in the city the buildings, or rather a room or two in public or private buildings are employed or occupied as schools anywhere in the city where it is found convenient or where such rooms can be procured. Each normal school (one for males the other for females) has a four years' course, with the following studies marked out:

First year.—Portuguese grammar, theory and practice of penmanship, French, Latin, arithmetic, drawing, geography, methods, music, voice culture, lectures, ornamental work for ladies, manual work or experience for young men.

Second year.—Philosophy of grammar applied to the Portuguese language, French conversation and translation, methods, moral philosophy, calisthenics, drawing, universal history, algebra, meteorology, psychology, sociology, political economy, practice of methods, music, voice culture, Latin, ornamental work for ladies, and manual exercise for men.

Third year.—Portuguese literature, Latin, geometry, trigonometry, map drawing, theory and practice of teaching, intellectual philosophy, physics, logic, constitutional law, practice of methods, music, voice culture, ornamental work for ladies, and manual exercise for the young men.

Fourth year.—Theory and practice of teaching, study of designs, hygiene, correspondence (different kinds of, style, and character), map drawing, history of Brazil, natural history, physiology and anatomy, chemistry, mineralogy, practice of methods, music, singing, drawing, calisthenics, gymnastics, ornamental work for ladies, and manual exercise for men.

There is also in this city an institution known as the Academy of Arts, in which architecture, painting, sculpture, and music are taught; another institution, also, known by the name of the Lyceum of Art and Practice, in which are taught, both day and evening, any branch or branches one may desire to study. There is no prescribed course; no prescribed time. A person may study whatever he wishes, from the A, B, C upwards. There is also an agricultural school at Santo Amaro, on the Paraguaçu River, about 36 miles from this city. It is said to be a good institution to learn the theory, but lacks the proper facilities for the practice required in this branch. In addition to the public schools of this city, numbering 71, yet with an average attendance of only 3,314 out of 25,606 of school age, there are 28 private schools, with, perhaps, an average attendance of 40 pupils.

One of the largest medical colleges in the country is also located in this city. Of the number who have graduated from the institution some 200 are practicing medicine in this city, not including college professors or retired physicians.

Notwithstanding all the apparent advantages for schools and the education of the youth of the state, the following is, perhaps, a fair sample of the illiterates (those unable to read and write) in the different towns of the state, not including the city of Bahia, in which, it is said, a larger percentage can read and write than in interior towns: According to a census taken by the secretary of the municipal council of the town of Feira de Santa Anna, in the district of the same name, in this state, the population numbers 4,454. Of these, 4,389 are Brazilians; Portuguese, 19; Africans, 23; French, 3; Germans, 3; Italians, 5; and North Americans, 1. There are 1,835 males and 2,619 females. The unmarried are 3,606; married, 636; widows, 215. Of the whole number, 2,797 have some occupation or profession and 1,657 are unemployed. Of the entire population of 4,454 but 1,578 know how to read and write.

LIGHT-HOUSES.

The light-houses in the state are four in number. The one near the entrance to the bay, called the "Pharol da Barra," or light-house of Santa Antonio da Barra, is the most important. The old light, as written in a dispatch some time since, has been removed, and a new light, with new apparatus, put up by F. Barbier & Co., of Paris, at a cost of 120,000 francs—the same character of light and apparatus as is said to have taken the first prize at the recent Paris exposition. It is a flash light, consisting of one red and two white flashes occurring at intervals of ten seconds; light, 104 candle-power, visible at a distance of 28 miles. There are consumed every hour 2,300 grams of the oil, which is a mineral oil. Latitude of this light, 13° 0′ 11″; and longitude, meridian of Rio de Janiero, is 4° 35′ 10″.

Morro de San Paulo is a white light in latitude 13° 21′ 40″, and longitude 4° 12′ 18″; Itapoan, white light in latitude 12° 17′ 30″ and longitude 4° 46′ 30″; Abrolhos, white light in latitude 17° 57′ 31″ and longitude 4° 2′ 5″.

NAVIGATION AT BAHIA.

Steam-ship lines.—The table herewith following shows that the number of American steam-ships that entered this port and departed from it in 1889 was 7 more than in 1886. Still, the number of steamers on the line may not have increased—simply made more trips, it may be. There is a difference of 7 in favor of 1889. During this time, it may be observed, the Germans increased their number by 18, the British made a gain of 28, the French added 25 to their number, the Austrians went from 7 to 15, while the Brazilian has had an increase of 26.

The foreign lines of steamers touching at this port are as follows: Royal Mail Steam-packet Company, Pacific Steam Navigation Company, Hamburg-Südamerikanische Dampsfschifffahrts Gesellschaft, Société Générale de Transportes Maritimes, Lamport & Holt's line, Messageries Maritimes, Chargeurs Réunis, Norddeutscher Lloyd, United States and Brazil Mail Steamship Company, Navigazione Italo Braziliana, the Hammonie line, and a Portuguese line.

The Brazilian steamers run coastwise and are: Lloyd's Brazileiro, Compania Bahiana, Navigation Company, Pernambucana Navigation Company, and Compania Norte Sul.

Coal for steam-ships.—The coal imported from England to supply the steamers that coal here is as follows: In 1886, 54,924 tons valued at £155,340; in 1887, 49,303 tons valued at £91,211; in 1888, 49,824 tons valued at £93,420; and in 1889, 66,972 tons valued at £172,453.

The gas and the railway company import their own coal. All imported is supposed to come in free of duty, but still it pays what is called an "expediente"—a tax varying from 6*d.* to 1½*s.* per ton.

Table showing the number and tonnage of vessels that entered and cleared at the port of Bahia for the years 1886–'89.

Flag.	1886.				1887.			
	Steam.		Sail.		Steam.		Sail.	
	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.
American	23	44,749	8	6,204	31	62,253	5	4,328
Austrian	7	6,099			8	10,504		
British	128	213,307	101	35,846	118	185,018	89	32,178
Brazilian	72	144,560	13	2,449	96	191,904	8	2,326
Belgian	11	17,025			6	5,963		
Danish			8	1,321			5	944
Dutch			7	1,109			6	1,356
French	79	174,516			96	186,167	1	272
German	106	181,886	20	3,743	118	173,199	7	1,767
Italian	2	2,916	7	2,017				
Norwegian			93	32,816			70	29,819
Spanish			1	186			1	237

Table showing the number and tonnage of vessels that entered and cleared at the port of Bahia for the years 1886-'89—Continued.

Flag.	1888.				1889.			
	Steam.		Sail.		Steam.		Sail.	
	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.
American	28	56,216	3	2,760	30	63,198	7	2,938
Argentine	2	1,764	....	....	1	874	....	....
Austrian	10	23,862	....	....	15	22,109	....	....
British	135	219,022	77	29,185	156	264,577	63	24,716
Brazilian	96	191,904	6	1,184	98	201,106	3	928
Belgian	6	10,810	....	....	5	9,420	....	....
Danish	....	....	2	749	....	....	1	134
Dutch	....	....	1	330	....	....	3	586
French	104	175,314	1	220	104	175,314	....	....
German	78	119,398	10	4,773	124	203,615	14	5,608
Italian	4	4,467	4	2,059	5	7,675	....	....
Norwegian	....	....	67	29,290	....	....	84	36,812

CHEERING OUTLOOK.

The financial outlook for Brazil is much brighter now than at this time last year. The prospect for a fair sugar crop in this state is good, while in the state of Sergipe, in this consular district, the yield will be about (estimated) 8,000,000 kilograms. Tobacco, the principal product exported, is said to be a very good crop.

If all goes well politically and the Government becomes stable, fixed, permanent after the elections so soon to take place, and on the result of which so much depends; if selfish interest shall be laid aside, and wisdom shall prevail in the affairs of the state and the General Government; and if the agricultural interests are cared for, built up, and extended as of prime necessity, Brazil has a bright and prosperous future.

DAVID N. BURKE,
Consul.

UNITED STATES CONSULATE,
Bahia, August 27, 1890.

BAVARIAN-NEW YORK GLASS TRUST.

REPORT BY COMMERCIAL AGENT DUNLAP, OF FÜRTH.

I have the honor to report that some time during the early months of the year agreements were entered into by the manufacturers of plate-glass (said manufacturers being mostly located in Bohemia, Austria, and Bavaria, Germany), the polishers and finishers of such glass (a large proportion of whom are located at Fürth or in its near vicinity), and the importers of such glass in the United States (most, if not all, of whom are located in the city of New York), whereby the first-named parties agreed not to sell raw or unfinished glass suitable for the manufacture of mirrors to any person or persons not a member of the pool at Fürth. To this agreement all, or essentially all, of the manufacturers of glass used in that particular branch of manufacture assented, with penalties to be paid if such agreement was violated.

On the part of the finishers, grinders, and polishers of such glass it was agreed, with the exceptions noted hereafter, that they would not buy raw material elsewhere or encourage the building or operation of additional glass-works; that they would not enlarge their present capacity for manufacturing; and that they would not sell any of their finished product to any one outside of the pool in New York. To this agreement, made in writing, all the manufacturers at Fürth and its vicinity subscribed except two, who reserved the right to sell to any one in the United States, which, as they were small manufacturers, was agreed to, they having promised not to enlarge their works in any event.

On the part of the importing companies in New York, of whom there were quite a number, it was agreed to all go out of business and to form a joint-stock company for the purpose of dealing in such goods as are manufactured by the pool here, and such organization was formed and is now known as the German Looking-glass Plate Company, of New York. To this company nearly all the glass used for mirrors is sent from here; the prices of the same, as I am informed by the shippers, being determined here, or the goods actually sold, though this admits of a doubt. The first shipment of glass from here was made to this firm on the 1st day of July, 1890, and has amounted to about 175,000 marks per week since.

The result of this combination has been, as the manufacturers here say, to enable them to obtain better and more regular prices for their goods, to do away with ruinous competition in the United States, and to compel the consumers of glass to purchase of the company before mentioned and at enhanced prices. That such a combination is advantageous to the manufacturer of glass, to the finisher, silverer, and polisher, and to the importer, is obvious; but that it is advantageous to the manufacturer or consumer in the United States admits of question.

HIRAM J. DUNLAP,
Commercial Agent.

UNITED STATES COMMERCIAL AGENCY,
Fürth, September 13, 1890.

THE NEW FRENCH DUTY ON MAIZE.

REPORT BY MINISTER REID, OF PARIS.

In reply to the Department instruction of August 1, requesting, at the instance of the Baltimore Corn and Flour Exchange, a copy of the new law relative to the French duty on maize, and adding that the Department would be glad to receive several copies of the same, I send herewith four numbers of the Journal Official of July 9, containing, on page 3465, the text of the law in question.

WHITELAW REID,
Minister.

UNITED STATES LEGATION,
Paris, August 13, 1890.

THE LAW.

[Inclosure in Minister Reid's report.—Translated in the Department.]

A LAW RELATIVE TO THE DUTIES TO BE LEVIED ON INDIAN CORN AND RICE.

The Senate and Chamber of Deputies have enacted, and the President of the Republic promulgates, the following law:

ARTICLE 1. After the promulgation of this law Table A, import tariff, which is a part of the general tariff adopted by the laws of May 7, 1881, and March 28, 1885, shall be thus modified as regards Indian corn, rice, daris, and millet.

Articles.	Units on which duties are computed.	Duties on *—	
		Articles of European origin.†	Articles of non-European origin.‡
Indian corn:	*Kilograms.*	*Francs.*	*Francs.*
Unground	100	3.00	6.60
In meal	100	5.00	8.60
Rice:			
In the straw	100	3.00	6 60
Broken	100	6.00	9.60
Whole, in flour, or *semoule*	100	8.00	11.60
Daris and millet:			
Unground	100	3.00	6.00
Ground	100	4.50	8.10

* Décimes and 4 per cent. included.
† Imported from non-European countries.
‡ Imported from the centrepôts of Europe.

ART. 2. Indian corn, rice, and hard grain used for the manufacture of starch, in oblong pieces and in lumps, shall be exempt from duty.

TOBACCO IN EGYPT.

REPORT BY ACTING CONSUL-GENERAL GRANT, OF CAIRO.

I have the honor to inclose herewith translations of three khedivial decrees,* all dated June 25, 1890. The first raises the import duty on foreign tobacco from 17 piasters to 20 piasters per kilogram, or from about 31.3 cents to 45 cents per pound; the second raises from 10 piasters to 20 piasters per kilogram, or from 22½ cents to 45 cents per pound, the duty on other than Persian tombac and constitutes a Government monopoly for the importation of all tombacs; and the third prohibits the cultivation of tobacco and tombac throughout Egypt.

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*Not considered necessary to publish.

Previous to the issue of this last decree the area devoted to the cultivation of tobacco in Egypt had been limited by the Government, first to 3,000 acres and afterwards to 1,500 acres. The prohibition will therefore affect a very small fraction of the total cultivated area of Egypt, which is 5,200,000 acres.

Of late years the cultivation of tobacco in Egypt has been entirely monopolized by a small number of dealers, who, by means of rents barely equal to the taxes, had the lands worked to the very last degree, in order to reduce to a minimum the rate of taxation, and who realized enormous profit by mixing the inferior product of the country with foreign tobacco.

Under the old régime it was not always easy to control the cultivation within the prescribed limits, and it is thought that by this new legislation a better control can be had over secret plantations, which were made formerly on a large scale, especially as the sheiks of the villages are now made partly responsible for infringement of the law in their districts. The chief object, however, of this legislation is the increase of revenue, and it is proposed to devote the increase thus obtained to the reduction of taxation among the agricultural population.

As soon as it became known to merchants that from July 1 there would be an increase of duty on tobacco, they immediately began importing on a large scale, doing their best to get as much as possible through the custom-house before the going into effect of the new law. It is stated that over $2,500,000 were advanced to tobacco dealers to enable them to withdraw their stocks of tobacco from the customs stores at the old rate of duty. With commission, warehousing charges, insurance, interest, etc., the charges on the advances made runs from 22 to 27 per cent. per annum.

The result of all this is that the stock of tobacco now in the country is sufficient for consumption up to the latter part of next year, so that it will not be until 1892 that the Government will derive any appreciable benefit from the increase of the duty. Nevertheless, the amount received at the custom-house in payment of duty on tobacco during the month of June was about $2,383,651, and there remained in the customs stores on June 30 about 7,680,952 pounds of tobacco, the duty on which ($2,545,827) was to be regulated at the old rate in July, thus swelling the total receipts for June to $4,929,776, which sum the Government can make use of at will. The inclosed table shows these receipts in detail.

As the tobacco now being consumed was entered at the old rate of duty, merchants can still afford to sell at their old prices, and it appears that there has not yet been a general rise. Sooner or later, however, an increase is unavoidable.

I shall endeavor to keep the Department informed of any changes in the price of tobacco, in order that collectors of customs in the United States may be notified. The greater part of the cigarettes exported from here to the United States go to New York.

Table showing duty collected on tobacco, tombac, and cigars at the different ports in Egypt during the month of June, 1890.

Description.	Alexandria.	Port Said.	Suez.	Damietta.	Total.	Duties received on goods in deposit for the Regie.
Tobacco:						
Turkish—						
With *raftick*[*]	$1,232,203.67	$40,775.80	$1,305.64	$23,603.92	$1,297,889.03	$101,984.59
Without *raftick*	2,008.85	315.70			2,324.55	747.18
Greek and foreign	856,938.01	3,138.85			860,076.86	
Do	156,312.67	3,922.22			160,234.89	
Tombac:						
Persian	2,485.63				2,485.63	
In transit	2.78				2.78	
Hoummy			31,672.82		31,672.82	
Chewing tobacco and snuff	3,082.11				3,082.11	
Cigars:						
Category I	86.85				86.85	
Category II	1,312.58				1,312.58	
Category III	4,607.28				4,607.28	
In transit	.77				.77	
Tobacco sold	54.78				54.78	
Total	2,259,095.98	48,152.57	32,978.46	23,603.92	2,363,830.93	102,731.77
Portion coming to the Government on duties encashed in Egypt for account of the Regie	19,826.58				19,826.58	
Grand total	2,278,922.56	48,152.57	32,978.46	23,603.92	2,383,657.51	
Re-imbursement of duties on foreign tobacco		7.77			7.77	
Net duties	2,229,922.56	48,144.80	32,978.46	23,603.92	2,383,649.74	

NOTE.—Besides the amount shown in this table, the sum of $2,545,826.80 was encashed on 7,680,952 pounds of tobacco in customs stores, to be regulated in July.

[*] A certificate from the Turkish authorities to exporters against payment of 1 piaster per kilogram, on presentation of which importers in Egypt pay 3 piasters per kilogram less duty.

Comparative table of the revenues of the custom-house for the month of June for the years 1883–'90, inclusive.

Description.	1883.	1884.	1885.	1886.
Importation	$184,878.49	$141,536.83	$207,428.77	$165,560.92
Exportation	30,295.54	31,048.54	30,182.41	22,732.88
Various	11,064.48	10,121.25	11,830.73	12,690.09
Total	226,238.51	182,706.62	249,441.91	200,983.89
Tobacco, tombac, cigars	41,408.86	61,476.51	60,752.02	102,342.36
Grand total	267,647.37	244,183.13	310,193.93	303,326.25

Comparative table of the revenues of the custom-house. etc.—Continued.

Description.	1887.	1888.	1889.	1890.
Importation	$179,408.59	$187,128.42	$166,991.05	$162,077.16
Exportation	26,919.33	31,606.62	19,206.06	26,497.60
Various	10,027.82	12,788.74	13,302.81	16,438.39
Total	216,355.74	231,523.78	199,499.92	205,013.15
Tobacco, tombac, cigars	70,985.22	151,647.78	173,431.23	2,383,649.77
Grand total	287,340.96	383,171.56	372,931.15	2,588,662.92

Table showing the revenues of the custom-house for the first six months of the years 1883–'90, inclusive.

Description.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.
Importation	$1,361,839.29	$1,041,830.11	$1,353,583.24	$1,164,335.50	$1,241,332.89	$1,216,596.39	$1,000,885.92	$1,147,478.33
Exportation	327,033.05	311,129.84	355,242.86	260,229.04	259,112.34	269,203.64	283,284.91	259,139.45
Various	72,713.46	66,248.76	78,503.39	89,263.16	74,185.77	76,472.49	84,590.25	93,959.46
Total	1,761,585.80	1,519,208.71	1,787,329.49	1,513,827.70	1,574,631.00	1,562,272.52	1,368,761.08	1,500,577.24
Tobacco, tombac, cigars	285,904.51	418,114.49	412,250.38	755,893.12	743,275.49	807,550.45	1,049,824.94	3,532,681.04
Grand total	2,047,490.31	1,937,323.20	2,199,579.87	2,269,720.82	2,317,906.49	2,369,822.97	2,418,586.02	5,033,258.28

LOUIS B. GRANT,
Acting Consul-General.

UNITED STATES AGENCY AND CONSULATE-GENERAL,
Cairo, August 5, 1890.

SILK CULTURE IN CHINA.

REPORT BY CONSUL FOWLER, OF NINGPO.

As far as I am able to gather, this will be a good season for silk; but the quantity expected I have not been able to ascertain. The total exported from this consular district for the year 1889 is as follows, in piculs of 133⅓ pounds: Refuse, 17.81; piece-goods, 208.75; embroidery, 1.01; total value in taels,* 175,915. This shows only what has been exported through the customs under foreign superintendence, and is but a very small portion of what was produced in the year. The local consumption is very large, and a quantity is, no doubt, sent to the neighboring provinces overland or by canal.

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* 1 Haikwan tael = $1.15.

The eggs of the silk-worm from the last season have all been hatched, and, on further investigation, I find that the silk for this season has been partly reeled, and at some places the eggs for the next season have been laid. I would have sent the Department some of the new eggs, but was told they would be hatched on the way and consequently become useless long before they would reach the Department.

There are three kinds of silk-worms in the consular district, viz, the common, the horned, and the striped, and it is hard to say which makes the best silk. These all live on mulberry leaves.

There is a worm which lives exclusively on the leaves of the oak. This comes from New-Chwang. This worm is much larger and apparently harder to rear than the ordinary kind. It is quite green in color. The moth of this worm is of a deep yellow, and measures 4 inches across when the wings are spread out. On each wing are two or three transparent spots called eyes.

The natural life of an ordinary silk-worm, *i. e.*, from the time it is hatched to the death of the moth, is said to be forty-five to fifty days, about five of which are spent in spinning, ten in a chrysalis state inside the cocoon, and the rest of the time in a caterpillar state. When first hatched the worm is black and just visible, and when it is ready to spin it becomes about 2 inches long. While in a caterpillar state it has what are called here four sleeps, about five days apart and twenty-four to thirty hours duration each. During each of these sleeps the worm molts.

The silk-worm spins on a whisk of straw from 18 to 24 inches high. The whisk is made by taking a handful of straw and tying it a little above the middle and spreading the two ends until it is able to stand upright. The worm is put on this, and it crawls about until it finds a convenient place, when it begins spinning by hanging silk to the straw and then winding itself round, and in a very short time the worm is hidden from sight. In about five days the cocoon is completed. After this the reeling takes place; that is, it must be done within a week after the cocoons are completed, otherwise the chrysalis, becoming the moth, will eat its way through the cocoon, after which it is useless for reeling.

The process of reeling appears to be very simple, indeed. All utensils used consist of an earthen furnace, over which is put an iron pan, and a bamboo wheel 3 feet in diameter, worked with a crank. This wheel has no felly, and the exterior ends of the spokes are connected with thread or cotton twine. The spokes are set in twos into the nave or hub of the wheel in such a way as to form the letter V, and, therefore, instead of the felly, the cord connection passes from spoke to spoke, forming a regular zigzag. The cocoons are placed in the pan of water, under which a slow fire is kept; a stick is then used to stir the cocoons until the desired number of fibers (or ends of the silk) have adhered to it, then these are removed and passed through the hole of a cast attached to the furnace, and then fixed on to the wheel. The wheel is now set in motion and the reeling actually begins. It is said that an expert can reel off about a pound and a half of silk in a day.

There are no great silk factories in the immediate neighborhood of Ningpo or people who make keeping silk-worms a trade. It is said that the best silk comes from Huchon, where nearly the whole of the population is engaged in this industry. Huchon is in this consular district, about 200 miles from Ningpo.

The samples I send under separate cover.*

JOHN FOWLER,
Consul.

UNITED STATES CONSULATE,
Ningpo, June 10, 1890.

MERCANTILE MARINE OF DENMARK.

REPORT BY CONSUL RYDER, OF COPENHAGEN.

From the tabular returns lately issued from the statistical department it is shown that the Danish mercantile fleet at the close of the year 1889 consisted altogether of 3,243 vessels of the aggregate tonnage of 281,014 register tons, of which, 2,938 vessels of 177,437 register tons belonged to the sailing class and 305 vessels of 103,577 tons to the steam class, in addition to which there were 11,174 boats of or below 4 register tons engaged in fishing or other pursuits. The changes which have taken place during the last ten years in these classes of shipping have been of the following character, viz:

Year.	Sailing vessels.		Steamers.		Total.	
	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.
1880	2,881	197,509	201	51,956	3,082	249,465
1881	2,857	191,983	226	61,426	3,083	253,409
1882	2,829	186,152	239	70,706	3,068	256,858
1883	2,857	185,354	258	81,042	3,115	266,396
1884	2,854	181,791	274	90,710	3,128	272,501
1885	2,881	179,998	280	89,807	3,161	269,805
1886	2,874	175,673	279	87,781	3,153	263,454
1887	2,877	172,127	281	89,915	3,158	262,042
1888	2,889	166,887	290	95,576	3,179	262,463
1889	2,938	177,437	305	103,577	3,243	281,014

The total mercantile fleet in 1889 is thus found to have increased 64 vessels and 18,551 tons as compared with the year 1888. Looking back, however, to the period of ten years, the tables show that a transition has been gradually going on from the sailing to the steam class of vessels; and that, whilst the tonnage of the sailing ships since 1880 has met with a reduction of 20,000 tons, the tonnage of the steam class, on the other hand, has been doubled. It should also be noticed, with respect to the steamers, that during the ten years a steady transition has been taking place from small to larger sized vessels.

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*Samples sent to the Department of Agriculture.

This change from the sailing to steam class is made still more manifest through the statistical returns of the more remote period of 1866, in which year the sailing shipping of Denmark consisted of 2,711 vessels, with an aggregate tonnage of 152,000 register tons; that is to say, compared with the figures contained in the foregoing table for the year 1889, having met with an increase of 227 vessels and of 2,500 register tons in the period of twenty-four years, whilst the steam fleet, which in 1866 was found to consist of 65 vessels, with an aggregate of 6,379 register tons and of 3,735 horse-power, at the close of last year had been brought up to 305 steamers of 103,577 register tons and of 25,253 horse-power; in other words, the steam class having been increased five-fold in numbers, seven-fold in horse-power, and by no less than seventeen-fold in tonnage. Owing to the great advance which took place in the rates of freight during 1888, a very much larger amount of capital was invested in this country in the past year in shipping business than in any of the later years. The collective amount spent on the construction of new vessels at the home works, as well as the purchase of sail and steam ships in foreign countries, was as follows:

Year.	Home-built.	From foreign countries.
	*Kroners.**	*Kroners.**
1885	1,813,000	527,000
1886	825,000	438,000
1887	1,667,000	664,000
1888	1,599,000	1,007,000
1889	3,188,000	4,313,000

* 1 kroner=26.8 cents.

Table showing the number of ships lost and sold.

Year.	Lost at sea.	Sold to foreign countries.
	Kroners.	*Kroners.*
1885	789,000	559,000
1886	712,000	237,000
1887	883,000	174,000
1888	1,419,000	216,000
1889	1,986,000	319,000

Thus in 1889 the purchases from foreign countries were of 4,000,000 kroners in excess of the sales thereto, whilst the cost of the home-built vessels was of 3,200,000 kroners, against the losses of 2,000,000 kroners sustained through disasters at sea.

Turning next to the general navigation of the Kingdom, together with the relative positions held by vessels under the Danish and foreign flags in their connection with the foreign trade of Denmark, it is seen that in 1889 there entered the different ports of the Kingdom 25,500 vessels, with an aggregate amount of storage cargo of somewhat over 2,000,000 tons, two-thirds of which was conveyed by steamers, and there cleared 24,663 vessels, with the aggregate amount of cargo of 501,507 tons. Taking the imports and exports each by themselves, it will be observed that the tonnage of the imported cargoes conveyed by vessels under foreign flags during the last five years has been considerably larger than that which was brought by vessels under the Danish flag, but that in the export trade the vessels under the national flag had a vast superiority over the foreign flags, as is shown by the following table:

Year.	Imports.		Exports.	
	Danish.	Foreign.	Danish.	Foreign.
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*
1885	44.2	55.8	69.3	30.7
1886	45.3	54.7	72.3	27.7
1887	45.3	54.7	71.4	28.6
1888	41.4	58.6	75.6	26.4
1889	43.6	56.4	75.4	24.6

It is mainly in the imports under foreign flags from England, Russia, and Germany that a marked increase is to be noted in 1888 and 1889 as compared with the three previous years, the imports under foreign flags from Great Britain having been almost entirely confined to vessels of that nation, whilst the imports from Russia were brought under British, Russian, and Swedish flags and from Germany under the German and Swedish flags. The coasting trade of the Kingdom, which is open to vessels of all nations, may be said to be exclusively carried on under the national flag, barely 1 per cent. of the trade having been performed by vessels under foreign flags.

Number of ships engaged in the foreign trade of Denmark in the years 1885–'89, inclusive.

ENTERED.

Year.	Danish.					
	Sail.			Steam.		
	Number of clearances.	Register.	Cargo.	Number of clearances.	Register.	Cargo.
		Tons.	*Tons.*		*Tons.*	*Tons.*
1885	5,836	325,515	285,578	6,356	1,329,049	480,488
1886	4,982	279,685	243,483	6,176	1,328,358	458,023
1887	5,510	291,541	252,574	6,850	1,457,591	534,356
1888	5,491	292,152	256,594	6,576	1,457,447	546,401
1889	6,071	332,180	280,275	6,930	1,602,515	596,582

Number of ships engaged in the foreign trade of Denmark, etc.—Continued.

ENTERED—Continued.

Year.	Foreign.					
	Sail.			Steam.		
	Number of clearances.	Register.	Cargo.	Number of clearances.	Register.	Cargo.
		Tons.	*Tons.*		*Tons.*	*Tons.*
1885	10,152	484,934	465,023	3,227	966,221	501,430
1886	7,295	397,501	375,540	3,019	922,955	470,357
1887	8,035	432,717	400,449	3,669	1,077,467	548,045
1888	8,266	416,948	399,246	3,909	1,212,789	730,166
1889	8,418	435,632	415,485	4,081	1,258,967	718,839

CLEARED.

Year.	Danish.					
	Sail.			Steam.		
	Number of clearances.	Register.	Cargo.	Number of clearances.	Register.	Cargo.
		Tons.	*Tons.*		*Tons.*	*Tons.*
1885	5,173	308,449	63,702	6,046	1,278,727	241,929
1886	4,658	280,808	69,437	5,963	1,318,084	252,657
1887	4,995	294,419	65,910	6,652	1,418,092	265,754
1888	5,224	297,919	67,463	6,217	1,402,532	273,087
1889	5,590	317,817	74,367	6,614	1,542,851	305,981

Year.	Foreign.					
	Sail.			Steam.		
	Number of clearances.	Register.	Cargo.	Number of clearances.	Register.	Cargo.
		Tons.	*Tons.*		*Tons.*	*Tons.*
1885	10,172	486,725	48,808	3,408	997,155	86,498
1886	7,269	400,498	40,785	3,240	984,907	82,567
1887	7,791	419,306	51,112	3,858	1,103,271	81,545
1888	8,227	421,400	39,714	4,047	1,246,767	82,306
1889	8,216	427,393	38,733	4,243	1,285,041	82,426

HENRY B. RYDER,
Consul.

UNITED STATES CONSULATE,
Copenhagen, July 9, 1890.

No. 121——7.

THE ROUEN CONSULAR DISTRICT.

REPORT BY CONSUL WILLIAMS.

The cotton spinners, weavers, and other manufacturers and forwarding merchants have had no reason to complain during the past year.

AMERICAN PETROLEUM AND KEROSENE.

The petroleum trade has increased and Rouen must be its principal center. It has been successfully brought to this port in bulk by vessels fitted especially for this trade. The subject of duty upon petroleum and kerosene has attracted the attention of the chambers of commerce of Rouen, Douai, Roubaix, Calais, and Dunkirk, in this consular district, which bodies favor the maintenance of the present rates of duty, which are 18 francs per 100 kilograms (220.46 pounds) upon crude petroleum and 25 francs upon refined. These cities are favored with extensive refinery works, and do not, therefore, admit the propriety of reducing the tariff upon refined oils, nor increasing the duty upon the crude. The agricultural interest still insists that petroleum interferes with lighting France with colza. The quality of the refined oil is much inferior to the American standard and deters many from using it, as its odor is nauseous and power of illumination inferior; still, the demand for kerosene such as the refineries furnish is large and increasing. American refined petroleum is procurable in Paris, but is not distributed throughout the country. The impurity of the kerosene almost prohibits its use in cooking and heating, and the high rate at which it is sold places it out of the category of cheap fuel. The imperfect lamps which, until recently, have been in use have also had a tendency to limit its use.

IMITATING AMERICAN MANUFACTURES.

The American lamps were commonly offered on the market before the refineries were well established, and when these had a firm footing the patents on lamps had expired and cheap and rough imitations of these lamps were introduced. The duties and superior workmanship of the American lamps render them costly, and it requires much patience and argument to convince this economical people of their greater value.

Agricultural implements, as well as many other useful American inventions, are more and more displaced by rough imitations manufactured here. Sewing-machines hold their own, but are mostly manufactured in Great Britain, and are entered under favored tariff treaties.

AMERICAN COTTON.

The efforts which have been spasmodically made by cotton dealers in the United States to supply this market directly seem about to be realized. I have given much time to this subject, considering that the cost of an additional commission and handling deterred the free use of American cotton and offered temptations to substitute lower-priced raw material. In connection with shipments of cotton, phosphates could be advantageously sent out as ballast, as the product of France of this article is not equal to the demand and they are admitted free of duty.

IMPROVEMENT OF THE SEINE.

The improvements of the Seine are gradual, impeded by the demands and strains upon the national treasury in the way of army expenses and the subsidies granted by the Government for every conceivable object, and to which the French people are so accustomed that any change could only be brought about very gradually. The most recent proposition of the assembly called the "General Council" of this department is to increase the amount to be advanced by the interested cities and departments.

For the 24,000,000 francs which are already offered to the Government the chamber of commerce of Havre figures in round numbers for 12,000,000 francs; of Rouen, 4,000,000 francs; the department, 5,000,000 francs; the city of Havre, 2,000,000 francs; the city of Rouen, 1,000,000 francs. It is proposed to increase the proportion of Rouen to 5,000,000 francs, required to complete the work on the lower Seine and Havre, provided that the other interests equally increase their proportion. This is proposed by the minister of the interior, to enable him to present the measure to the Chamber of Deputies with a reasonable hope of obtaining their consent to the State appropriation required to complete this work.

ROUEN HARBOR.

The completion of the dry-dock for repairs of vessels and of the petroleum basin, the extension of the docks, their equipments, and the railroad connections offer every required facility for the rapid and economical discharge of vessels. The convenience of transfer for canal-boats diverging in every direction, for railroads, and storing on landing at the port is very great and compares favorably with the best-situated ports of Europe. The increasing trade and the fact of many regularly established lines directly connecting this port with other European centers attest the estimation in which this port is generally held.

BOULOGNE, CALAIS, DIEPPE, AND DUNKIRK.

The ports of Boulogne-sur-Mer, Calais, Dieppe, and Dunkirk are all favorably affected by the improvements of late years. Grain, petroleum, cotton, and like American products enter directly, and the advantage is apparent. When the access to these ports was limited to small vessels, the coasting vessels had an advantage, but their improved condition gives a wider range to their sources of supply. Their passenger traffic has increased, and a line of American steamers now touch for freight and passengers at Boulogne-sur-Mer, and it is contemplated by other lines to do the same.

CHAS. P. WILLIAMS,
Consul.

UNITED STATES CONSULATE,
Rouen, September 9, 1890.

SECRET REMEDIES AND SPECIFICS IN ITALY.

[Baron Fava to Mr. Blaine.—Translation.]

ROYAL LEGATION OF ITALY,
Washington, September 5, 1890.

MR. SECRETARY OF STATE: In accordance with the provisions of article 27 of the law of December 12, 1888, the royal ministry of the interior has adopted a measure regulating trade in secret remedies and specifics.

In order to accomplish this object, the royal department in question has just sent to the prefects of the Kingdom a circular which prohibits manufacturers of and dealers in secret remedies and specifics from introducing their productions into Italy unless they comply with the conditions prescribed in that document. The time fixed by the circular in question does not, however, refer to the importation of the above-named productions into the Kingdom, but merely to their sale in Italy. The royal custom-houses have consequently received orders not hereafter to allow the introduction of preparations that do not meet the requirements of the law.

I have the honor herewith to send Your Excellency a copy of the circular in question, in pursuance of instructions received from the Royal Government, which desires to avoid any misunderstanding, so far as this may be possible; and I have recourse to Your Excellency's accustomed kindness, begging you to be pleased to give the greatest possible publicity to this document, by such means as you may deem most suitable, in the interest of American manufacturers and sellers of secret remedies and specifics.

Be pleased to accept my warmest thanks in advance, Mr. Secretary of State, together with the renewed assurances of my highest consideration.

FAVA.

His Excellency JAMES G. BLAINE,
Secretary of State, etc., Washington.

[Inclosure.

The circular of the Italian ministry of the interior which accompanies Baron Fava's note bears date of June 16, 1890. It states that the object of article 27 of the law for the protection of the public health is to put a stop to the sale of secret remedies and specifics, the efficacy of which is, it says, for the most part, wholly imaginary, and which are always used without the slightest discernment.

Secret remedies and specifics are either composed of substances which their owners are unwilling to make known, or they are special pharmaceutical preparations whose ingredients and therapeutical action are known.

In the former case, the secret of the composition of the remedy may remain the exclusive property of the discoverer, whoever he may be, and the remedy itself may be sold, after the the approval of the superior board of health has been obtained, provided that it be sold in doses and in the form of medicine by pharmacists.

In the latter case, however, a compound of known remedies, representing nothing more than a prescription, must be prepared and sold by pharmacists; its formula, however, must never be kept secret, but must be written or printed in plain letters on the bottle or vessel which contains the remedy when offered for sale.

While the authorization of the superior board of health must be obtained before the former special preparations can be sold, for the latter no such authorization is necessary, since they can not be secret remedies.

What constitutes the special value of this latter class of preparations is the system of preparing them, whereby a pleasant taste and attractive appearance may be given to the remedy or its use may be otherwise facilitated and its efficacy increased.

In the case of the latter remedies, however, it is the duty of the health authorities to see that a stop is put to the sale of all those which are shown by their formulas, or by an examination, to be dangerous; and also of those for which special curative virtues are claimed, either on their labels or in advertisements. The greatest care, moreover, must be exercised to prevent these remedies from being compounded by other than competent pharmacists. Hitherto no small injury has been done to public health in Italy by the sale of secret remedies to credulous persons.

After January 1, 1891, no special medical preparations can be sold in the Kingdom of Italy unless they fulfill the following conditions:

(1) Their exact ingredients, and the quantity of each, must be stated on their labels and in the advertisements whereby they are made known to the public.

(2) No special virtue or therapeutic indication must be claimed for them, either on their labels or in advertisements.

(3) They must be sold by none but pharmacists, under the supervision of the sanitary authorities and by the prescription of a physician.

It is to be understood that this privilege will not be extended to special medicinal preparations sold by persons who have not graduated as pharmacists or to the special preparations mentioned in the accompanying list and in those which will hereafter be published.

PRODUCTS OF SANTA CRUZ.

REPORT BY CONSUL TURNER, OF ST. THOMAS.

The crop of sugar for this season (1889–90), now about gathered, is estimated at 13,000 hogsheads of 1,500 pounds each. It has been quite a prosperous year for the island, the prices obtained being higher than for many years, and as a consequence the imports have been more than usual, amounting, for the year ending March 31, 1890, to $897,320, about three-fourths of which comes from the United States. The total value of exports for the same period was $1,114,943—greater than it has been for many years past. Of this amount $725,401 worth went to the United States.

The return of navigation at each of the ports shows a large increase in total tonnage over previous years, due to the number of steamers plying between New York and the Windward and Leeward islands and calling at Frederiksted with or for freight and passengers. It is almost needless to say that these steamers are under the British flag. Six years ago no steamers touched at this island.

With regard to the growing crop of sugar-cane, the prospect is not encouraging, in consequence of the protracted drought for the past ten months, which has prevented the establishing of plant canes. In many cases the fields have been replanted four times, and the stock of cane plants is now exhausted.

The rain-fall for the first six months of this year has been 80 lines, while for the same period of 1889 it was 250 lines, 8 lines being reckoned to the inch. As near as can be ascertained, this is the smallest quantity of rain that has fallen during the same period since 1864. If the drought continues, 2,000 hogsheads of sugar as the entire crop of the island is the most that can be expected. On the other hand, if what the planters call "forcing weather" sets in, 7,000 or 8,000 hogsheads may be made. This can be done only if heavy rains fall from time to time from now until next March. An estimate by a practical planter is as follows: If the drought continues, the crop will be 2,000 hogsheads; if good showers continue to fall, it will be 5,000 hogsheads; if heavy rains from time to time, 8,000 hogsheads. So that under the most favorable conditions the entire crop, at the present price of sugar, will not bring half the value of the crop for the season just ended.

MORTIMER A. TURNER,
Consul.

UNITED STATES CONSULATE,
St. Thomas, August 30, 1890.

PRICE OF SILVER IN HONG-KONG.

REPORT BY CONSUL SIMMS.

The rate of exchange prevailing in Hong-Kong to-day shows that the price of Mexican silver dollars has advanced 16.65 per cent. above the value declared on January 1, 1890. The mean rate since the announcement of the passage of the silver bill by Congress has been 86.83 cents, reaching one day 88; but gold coin can not be disposed of for more than $\$1.13\frac{64}{100}$ (at rate of 87.99 cents). It is generally believed here that with the silver bill in operation the rate will rise to about 90 cents, *i. e.*, a gold dollar will sell for $\$1.11\frac{11}{90}$ Mexican. Estimating the export from this port at $4,000,000 for the year 1890, at the declared value of Mexican dollars, the difference between the actual price paid and that upon which the duty is collected will aggregate for the remaining six months $335,000—practically an under-valuation to that amount. Add to this the exports to the United States from China, Japan, and the Philippine Islands purchased with the same currency, with the exception of those from Japan, and the loss to the revenue will reach a large sum. I, of course, will not presume to suggest a remedy, but it would appear wise to adopt the custom practiced by the French Government, that of declaring the values of standard coins each quarter instead of yearly.

O. H. SIMMS,
Consul.

UNITED STATES CONSULATE,
Hong-Kong, July 28, 1890.

THE COLOMBIAN TARIFF.

REPORT BY MINISTER ABBOTT, OF BOGOTA.

On the receipt of the Department's instruction of March 7 last, in which it was stated that a translation of the Colombian tariff and laws relating thereto would be of value to the Department, I immediately began to collect the laws referred to, and completed, as I supposed, the necessary arrangements for forwarding the same in May during my leave of absence. Finding, on my return, that this had not been done, I avail myself of the first opportunity to comply with the instruction.

The Department will find, as an inclosure in Mr. King's report of December 1, 1886, a copy and translation of law 36 of 1886,* which establishes the present import tariff of Colombia. I have examined this translation, and, considering the great number of technical terms employed, am of opinion that it is reasonably satisfactory, and consequently do not deem it necessary to make a new translation.

The first change in this tariff was made by the law 88 of 1886, whereby a horizontal increase of 25 per cent. was established. A copy and translation of this law will be found as an inclosure in Mr. King's report of January 6, 1887.

By law 89 of 1886 duties on niter and certain forms of sulphur were reduced to 1 cent per kilogram, the Government was empowered to increase duties on mining powder to not exceeding 50 cents per kilogram, the duty on leaf and cigarette tobacco was fixed at 5 cents per kilogram, and that on manufactured tobacco at 60 cents per kilogram. A copy and translation of this law is herewith inclosed.

By law 65 of 1887 the Government is authorized to grant exemptions from the payment of duties on machinery for industrial enterprises upon certain conditions, to increase the duties by 30 per cent. on importations from the Antilles if deemed advisable, and to impose a tax of from 5 cents per kilogram up on newly discovered articles of exportation for the purpose of paying a premium to the discoverer. A copy and translation of this law is herewith inclosed.

By law 107 of 1887 the importation of all classes of national circulating medium, excepting gold and silver coin of 900 milesimos and paper for the bills of the national bank, was prohibited.

By law 10 of 1888 the duties on articles imported into the custom-house of Buenaventura were reduced 20 per cent., and on those articles imported by Tumaco 30 per cent. A copy and translation of this law is herewith inclosed.

By law 41 of 1888 the Government is authorized to permit the importation of silver coin of 835 milesimos.

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* Published herewith.

By law 50 of 1888 the Government is authorized to decrease the tariff upon certain articles of prime necessity to manufacturing establishments when these articles can not be produced in the country, to decrease the duties upon fertilizers, and to increase the duties on articles, excepting salt, imported into Cucuta by 25 per cent.

In execution of this law, decree No. 537 of 1888 decreases the duties on wheat flour prepared for making vermicelli and other similar articles, blue paper for wrapping the manufactured products, and boards for making the packing boxes therefor to 1 cent per kilogram and prescribes the rule by which the purpose for which a given importation is made may be ascertained.

I also inclose a copy and translation of decree No. 382 of 1888, referred to in decree No. 537. The decree 382 relates to the manner in which lead and quicksilver designed for mining purposes may be shown to be properly imported for said uses and thereby entitled to pay the tariff rate of 12½ cents per kilogram. As this decree 382 refers to article 33 of decree 533 of 1882 and to article 1 of decree 731 of 1887, I herewith inclose copies and translations of the same.

In further execution of law 50 of 1888, decree 802 of 1889 reduces the duty on artificial guano to 5 cents per kilogram. A copy and translation of this decree is herewith inclosed.

By law 129 of 1888 the duty on iron, steel, and brass stamps and dies for mills to reduce ores is fixed at 1 cent per kilogram; on steel drills for mines at 5 cents per kilogram; on steel in bars for manufacture, 2½ cents per kilogram; on quicksilver, 2½ cents per kilogram; on dynamite for mines, 5 cents per kilogram; on hops, 5 cents per kilogram; machetes (a kind of large knife peculiar to the country) not exceeding 20 inches in length, 5 cents per kilogram; on claret wine, Bordeaux, Burgundy, Calabán au San Rafael (medicinal), in bottles, 5 cents per kilogram; on bags and hemp or flax cloths for packing, 1 cent per kilogram; on cigarettes and cigars, $1.20 per kilogram; on sulphuric acid, bromides of potash and soda, chloride of lime (bleaching-powder), hyposulphate of soda, carbonate of soda, and caustic soda, 1 cent per kilogram; and on machinery for mines and iron for houses, 1 cent per kilogram.

The duty on plain cottons imported into Tumaco is also further reduced 25 per cent. The Government is also authorized to receive in payment for customs duties in Cucuta lawful silver coin of 835 milesimos in payment of 20 per cent. thereof, in place of the 25 per cent. advance authorized by the law of 1888. I inclose a copy and translation of this law.

These comprise all the changes made in the tariff of 1886 down to date, so far as I have been able to discover. I am not now able to send the rules and regulations relating to custom-house procedure, etc., and attend to the other duties of the legation. If they are desired, I will forward them at the earliest possible moment.

JOHN T. ABBOTT,
Minister.

UNITED STATES LEGATION,
Bogota, August 8, 1890.

THE TARIFF.

[Inclosure in Mr. King's report of December 1, 1886.—Translation.]

LAW NO. 36 OF OCTOBER 28, 1886, RELATING TO CUSTOM-HOUSES.

The National Legislative Council decrees:

ARTICLE 1. The following duties shall be levied, per kilogram, on foreign goods imported into the national territory:

Food and condiments.

Potatoes of all varieties, onions, corn, rice, peas, beans, and all classes of vegetables and fresh fruits	$0.01
Garlic	.05
Flour, including sago, arrowroot, tapioca, corn meal, and all similar products	.05
Cod-fish and salt meats, and all fresh fish and meats	.05
Sugar	.05
Hazel-nuts, nuts, and almonds in the shell, and generally all unprepared food not mentioned	.10
Vermicelli and other dough preparations; prepared food, such as pickled or smoked meats, salmon, hams, sweetmeats, confections, preserved and dried fruits, etc., and all pickles and condiments not specially mentioned	.20
Olives, in barrels	.10
Tea	.70
Cinnamon	.30
Saffron	1.20
Anise	.20
Ice	1.00
Salt (per 12½ kilograms)	1.20

Liquors.

Beer and other fermented liquors	.05
Barley, must, or other fermented or unfermented materials, liquid or solid, for making beer and condensed beer	.02½
Wines:	
Claret, common, in pipes, barrels, and demijohns	.02½
White, sweet and dry, in pipes and barrels	.05
All other	.40
Spirituous liquors, as brandy, rum, gin, whisky, rossalis, etc., and all condensed liquors for making the same	.40

Other liquors.

Vinegar, in barrels	.05
Olive oil:	
In jars	.10
In bottles	.10
Linseed-oil, for preparing paints	.10
Black writing-ink	.05
Colored writing-ink	.10
Printers' ink, for printing and lithographing, liquid and solid	.01
Liquids generally, except perfumery and others specially mentioned	.20

Cotton.

Cotton manufactured in grays, without white or colored parts and without brocade or seams	.40

Blue salempores and white shirtings, or grays with white spots without color, printing, seams, or embroidery, such as those known as bogatarros, calicoes, and liencillos, madapollanes, croydons, and others of the same kind	$0.50
Drilling and other cotton fabrics, white or colored, not enumerated in other parts of this tariff	.60
Quilts, marseilles, and brocades not included in any other group, and cords, tapes, and ribbons	.70
Shawls (with or without woolen fringes), handkerchiefs (with or without common embroidery), ponchos or stuffs for making them	.80
Stockings and all kinds of hosiery, such as undershirts, drawers, and gloves; muslins and lawns of all kinds, damasks, table-cloths, and hammocks, and ready-made clothes without embroidery, laces, and other ornaments which may belong to goods subject to a higher duty	.90
All kinds of embroidered work or Swiss muslins or imitations thereof, including laces, entre deux, and the like, and ready-made clothing not mentioned in any other group	1.20
White sewing-thread	.40
Colored sewing-thread	.60
Fringes, woolen tapes, cords, tassels, and other similar goods	.90
Wicks for lamps and tinder	.20
Wicks for candles and matches	.10
Bridle-reins for saddlers	.20

Hemp and flax.

Empty bags made of hemp, with or without pitch or paper, tarpaulin and common stuffs of the same for making them	.02½
Osnaburgs	.10
Common unbleached cloth, such as crekuelas, brown Hollands, ducks, canvas, and materials for making tents, with the exception of drills	.30
White and printed crekuelas	.40
Fine unbleached cloth, with the exception of drills and other stuffs mentioned in succeeding groups of this tariff	.60
Unbleached drills, white or colored creas, platillas, diapers, stuffs for making table-cloths, napkins, and towels, bed-covers, stuff for mattresses, tapes, sheetings, and the like, not enumerated in other articles of this tariff, provided they have no seams or embroidery of any kind	.80
Handkerchiefs, caps, stockings, gloves, Britannias, coquillo, estopillas, picardias, Irish linen, lavales, Warandofs, batistes, and printed stuffs in imitation of cotton—fringes, tapes, tassels, and such other goods; ready-made clothes without embroidery or lace or any other trimming which may belong to goods subject to higher duty	1.00
All kinds of embroidered stuffs or lace-work and imitations thereof, including lace, entre deux, and the like; and ready-made clothing not mentioned in other groups	1.20
Thread and yarns	.40
Tarred cordage and cables	.05
Cordage not mentioned	.20
Varnished stuffs for roofing cottages and bridges	.05
Varnished mattings for floors, and oil-cloths for carriages, not including that used for table-covers	.20

Wool.

Unmanufactured wool	.05
Blankets	.50
Yarns	.60

Carpets and rugs	$0.70
Baize, friezes, and flannels	.90
Light fancy goods for dresses, all kinds of embroidered and lace-work, and imitations thereof, including laces, entre deux, and the like, and ready-made clothes	1.20
All other goods and stuffs not mentioned in this tariff	1.00

Silks.

Thread and all kinds of goods	1.20

Goods and threads.*

Brocades and other stuffs embroidered with gold, silver, and other metals; also, thread, etc., made of the same materials	1.20
Goods made of horse-hair and other materials not mentioned	.60
Oil-cloths for furniture and table-covers, not mentioned	.60
Small samples not weighing more than 25 kilograms	

India rubber.

Unmanufactured India rubber	.40
Shoes and boots of all kinds, life-preservers, materials for making leggings and oil-cloth cloaks that contain neither wool nor silk	.80
Pipes and hoes for pumps, drains, and roofs; material prepared for machinery and floors, except pipes for fire-engines, which shall pay 1 cent per kilogram	.05
Corks and bottle stoppers	.10
Elastic for shoes	.60
Uncovered buttons	.40
Manufactured in any form	1.00

Hides and furs.

Hides and furs, unmanufactured, except patent leather	.20
Patent leather, unmanufactured	.30
Shoes	1.00
Gloves, caps, furs for adorning dresses, etc., pocket-books, cigar cases, pouches, and similar objects	1.20
Manufactures in forms not mentioned	1.00
Harness for carts and carriages	.10

Earthenware.

Earthenware and stone-ware:	
In any form	.10
In porcelain and talevera	.20
Pots or pans, bottles (large and small, empty) and generally common crockery	.02½
Tubes for pumps, drains, and roofs	.05

Crystal and glass.

Demijohns and common bottles of black glass or of light-colored glass for liquids	.01
Flasks and vials of common glass for liquids	.02½
Plain glass not quicksilvered	.05
Looking-glasses, not larger than 25 centimeters	.20
Looking-glasses, larger than 25 centimeters	.40
Beads, pearls, quills, bugles for trinkets and jewels, and glass for watches and spectacles, and the like	.60
Glass in any other form	.20

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* Goods made of different materials shall pay the duty levied upon that which is subject to the highest import.

Articles for illuminating and other uses.

Wax (white, yellow, and laurel-colored):	
Not manufactured	$0.30
In candles or other forms	.40
Spermaceti:	
Not manufactured	.20
In candles, etc	.30
Stearine and paraffine:	
Not manufactured	.05
In candles, etc	.20
Tallow, not manufactured	.01
Tallow-candles or other upon which no duty has been levied	.20
Stearic acid	.01
Petroleum	.10
Wooden matches	.20
Wax matches	.60

*Drugs and medicines.**

Drugs and medicines generally (except sulphur and alum, which shall pay 20 cents per kilogram; sulphuric acid and saltpeter, which shall pay 5 cents; and potash and caustic soda, the ashes and salts of soda, pine resin, and the subcarbonates of potash and soda, which shall pay 2½ cents)	.30

Perfumery and soap.

Florida, Divina, and Kanangua waters	.30
All other articles of perfumery and for the toilet, such as essences, soaps, creams, razor-strops, tooth and clothes brushes, etc., not mentioned in other parts of this tariff	1.20
Common oil soap	.20
Common resin or tallow soap	.05

Paper and card-board.

Paper for periodicals, pamphlets, and circulars	
White paper without glue, and colored for painting	.05
Brown and other common paper for wrapping and packing	.05
Sand-paper	.05
Paper for cigarettes	.05
Writing-paper, envelopes, and any other class not mentioned, and writing material not comprised in any other part of this tariff	.20
Bank paper	.10
Paper ruled for music	.30
Blank books, ruled and unruled, and memoranda	.40
Printed books	.10
Pictures, maps, and engravings of all kinds, and music (written or printed)	.40
Gilt or silvered paper	.40
Wall-paper and paper marbled or printed for book-binding and other purposes	.20
Card-board for printers, book-binding, lithography, and other industrial uses	.05
Card-board in other forms, except in playing-cards, which shall pay $1.20 per kilogram	.20

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* The term "medicines" comprises all objects used in sickness, such as trusses, braces, etc., but not pots and utensils of earthenware, etc., used by druggists, nor surgical instruments, etc., and other similar objects, which shall pay according to the general provisions of the tariff.

Wood.

Woods for building, such as poles, beams, ties for railways, quarters, and boards, not planed or polished	
Common woods (planed) and wood for cabinet-work (planed or unplaned), not modeled, except veneering	$0.01
Veneering	.20
Moldings, carriages, and ornaments for furniture, and gilt and ungilt frames, bedsteads, large dining tables, armoires, and large presses for clothes and other uses, without carvings or inlaid work	.05
Furniture of all kinds with mirrors, carvings, inlaid work, or woolen or silk upholstering	.30
Furniture not mentioned	.20
Furniture of the several descriptions does not include mattresses, cushions, etc., where they come alone, in which case they belong to the class of the material in which they are covered.	
Statues, images, and altars for churches	.20
Organs and pianos	.10
Harmoniums, hand-organs, and harps	.20
Other musical instruments	.80
Pencils (for writing and for carpenters)	.20
Molds and rules (for the useful arts)	.20
Bellows for furnaces	.05
Bellows of all kinds, except large ones for furnaces	.20
Saddle-trees, uncovered	.20
Buckets and bowls	.05
Barrels, pipes, and casks (mounted or otherwise) for dry goods or liquors	.02½
Cocks for barrels and pipes	.05
Common wooden boxes (roughly made, molded, or otherwise) for packing	.02½
Small boards for match-boxes and wood for matches	.05
Cars and carriages for railways	
Carts and wheelbarrows for carrying merchandise, etc	.02½
Coaches and carriages of all kinds	.05
Velocipedes	.40
Boats, mounted or in pieces, intended for navigation of Colombian streams	.01
Oars for boats	.05
Houses, in pieces	
Windows, doors, etc., when alone	.05
Machinery for boats, the useful arts, industries, and for agricultural and mining purposes	.05
Walking canes, without swords	.80
Forms of wood not mentioned	.40

Sisal-hemp, osier, and the like.

Empty sacks made of sisal-hemp, pitched or unpitched, with or without paper tarpaulin, and the material for making them	.02½
Hay and straw, unmanufactured	.01
Straw for making hats	.05
Mace-reed, straw, and common twigs, manufactured or in brooms	.05
Baskets made of twigs of any kind	.20
Mattings of all kinds	.05

Iron and steel.

Iron not manufactured	.01
Rails, nails, and other pieces for railways for the public use	
Rails not intended for the public use	.05

Boats or sections of same	$0.01
Anchors and grapnels for small boats	.02½
Bridges for public roads	
Bridges not intended for public roads	.05
Gasometers, apparatus tubes, and lamps for public purposes	
Works intended for the construction or repair of public penitentiaries	
Telegraph wires for public uses	
Wire for private uses	.02½
Steel wire for fencing and staples and other objects for mounting it	.01
Railing for ornamenting public buildings and squares	
Lightning-rods	
Pipes for public drains and public fountains	
Light-houses and towers for same	.01
Clocks for towers, including dials and bells	.02½
Houses and galvanized tiles and peaks for covering same	.01
Balustrading for buildings, doors, and windows, where it comes alone	.05
Fire-engines	.01
Hydraulic pumps and engines, with pipes and other pieces belonging thereto	.05
Machinery for manufacturing and mining	.01
Machinery for agricultural purposes	.02½
Machinery for the useful arts and industries	.05
Machinery not mentioned, the weight of which shall not exceed 1,000 kilograms	.05
Machinery of every kind, the weight of which shall exceed 1,000 kilograms	.01
Presses for printing, book-binding, and lithographing	.02½
Engines of every class and capacity	.02½
Tinned plates	.05
Monitors and large pipes for cleaning coffee, etc.	.02½
Large boilers	.05
Water-tanks for drinking-water	.01
Ore crushers	.05
Anvils and pulley blocks	.05
Plows	.02½
Plates and rods not comprised in unmanufactured iron, bedsteads, large chairs, iron safes, nails, French nails, cooking utensils (with or without tin lining), smoothing-irons, and heavy tools for agricultural, quarrying, and mining purposes, such as hoes, crow-bars, coffee diggers, shovels, axes, large augers, spades, stone-hammers, picks, drills, and chopping-knives and other knives for felling timber	.05
Tools for blacksmiths, stone-masons, carpenters, and brick-layers	.20
Lasts (for the useful arts)	.20
Wire, rings, butts, hinges, screws, and springs for furniture	.20
Furniture	.20
Fire-iron, wheels, axles, springs, and cones for carts and carriages	.05
Levers, weights, and steelyards:	
For weighing more than 100 kilograms	.10
For weighing up to 100 kilograms	.20
Curry-combs and curry-brushes	.20
Kitchen utensils and other objects tinned inside and outside	.20
Knives for the useful arts, such as are used for book-binding and shoe-making	.20
Cutlery, not mentioned in other group	.40
Side-arms, fire-arms, etc., including guns, pocket-knives, and scissors (fine and half-fine, with handles of ivory, pearl, electro-plate, and britannia), gun-tubes, beads (gilt or silvered), pencil cases, jewels, and all objects gilt or silvered or such as are known as German silver or electro-plate (fine or half-fine)	1.00

Steel in bars or rods for manufacturing purposes and drills	$0.20
Iron and steel made into forms not elsewhere designated	.40

Copper or brass.

Copper or brass, not manufactured, in bars or ingots	.10
Plates of every weight	.10
Pans or boilers, or articles of other class where weight exceeds 25 kilograms	.20
Objects whose separate weight shall exceed 500 grams and not exceed 25 kilograms	.40
Objects whose separate weight shall not exceed 500 grams	.50
Jewelry, beads, tape, spangles, fringes, tubes, threads, and other like objects, and electro-plated objects and percussion-caps	1.00
Statues for public buildings and squares	

Tin.

Ingots	.10
Plates and all other objects	.40
Dust and sheets	.50

Lead.

Ingots for mines	.02½
Sheets, tubes, and other articles whose weight shall exceed 5 kilograms, shot, type, and ingots not intended for mines	.05
Toys in thin sheets	.70
Covers for bottles	.10
All other forms	.40

Zinc.

Zinc, unmanufactured, in sheets or plates, including that intended for roofing and in tubes	.05
Manufactured in any other form	.40

Quicksilver.

For mines	.02½
For other uses	.20

Gold.

Gold in bars	.02½
Coin, not less than 90 per cent. fine	
Manufactured in other articles	1.20

Silver.

Silver in bars	.02½
Coin, not less than 90 per cent. fine	
Manufactured in other articles	1.20

Powder.

Powder, coarse and common, for mines, in barrels or other packages, the weight of which shall not exceed 2 kilograms	.05
Gun-cotton (called "tonito") for mines	.05
Fine powder (*mortacilla*), in cans and other packages, and, generally, all powder not comprised in the preceding paragraph	.60
Artificial fire-works	.70

Stones (building) and other raw materials.

Lithograph stones, whetstones, and pumice-stones	$0.05
Flints	.10
Marble and jasper:	
In paving stones and bricks	.01
Neither as paving-stones nor bricks, nor for lithography	.20
Marble:	
In powder, clay, earth, or Roman cement, lime, gypsum (unmanufactured or in powder), chalk, feldspar, silicon, marsicot, kaolin, bone in dust, and other raw materials for making crockery ware	.01
In statues and monuments for ornamenting public buildings and squares	
Slate for roofing	.01
Clay tiles	
Shingles	.01
Building materials, such as unwrought stone, clay bricks, and paving tiles made of burnt clay and stone	
Gypsum manufactured in any form not specified	.10
Colored clay for building purposes	.05
Alabaster in any form	.20
Crucibles for smelting	.05

Miscellaneous.

Live animals	
Mineral coal	.01
Pitch	.05
Black tar for ship-building	.05
Resin	.01
Common glue	.20
Tow or rope-yarn and felt for packing	.05
Varnishes	.20
Paints in powder or prepared	.20
Common paint brushes	.20
Curry-brushes and blacking-brushes	.20
Blacking for shoes	.20
Asphaltum	.05
Seeds, shoots, and sprigs of plants and live plants	.01
Guano	.05
Hops	.10
Tobacco:	
In the leaf and cut for cigarettes	.10
Chewing	.30
Manufactured	1.20
Bones and horns, unmanufactured	.05
Tubes, handles, and pipes of wood, India rubber, earthenware, clay, or metal, used for pumps, drains, and roofing, except for fire-engines	.05
Slow matches, for mines	.05
Cork in sheets and bottle stoppers, etc	.10
Objects for chemical laboratories and instruments for meteorology	.10
Common buttons made of bone, horn, vegetable ivory, and paste, without covering	.40
Common pearl-buttons	.60
Common horn combs	.40
Slates and slate pencils for writing	.05
Stone filters	.02½
Precious stones	1.20

Umbrellas	$0.80
Hats, caps, bonnets, etc., shall pay, respectively, as ready-made clothing, at the rate that is charged on the material out of which they are made, except those made of straw, which shall pay $1.20 per kilogram, and 60 cents if they are common.	
Articles of whatever kind that are imported for the National Government	
All effects intended for the use of foreign public ministers or diplomatic agents accredited to the Government of the Republic, provided that the nations to which they belong accord the same exemptions to the ministers and diplomatic agents of the Republic, and that the formalities prescribed by law in such cases be complied with	
The natural products of Ecuador, the United States of Venezuela, Peru, and the other nations to whom free-trade has been granted under acts of reciprocity negotiated in public treaties	
The luggage of passengers up to the weight of 150 kilograms, provided that the same is for private use and that it be presented by such passengers at the custom-house when entering the national territory (for all excess of this weight the same shall pay the highest duty levied on merchandise by this tariff)	
All articles not mentioned in this tariff shall pay	1.00

The said merchandise shall, consequently, form one class free of duty and fourteen assessed with 1, 2½, 5, 10, 20, 30, 40, 50, 60, 70, 80, and 90 cents and $1 and $1.20, respectively, and the said classes shall be designated by their order first, second, third, etc.

The minister of finance shall formulate and publish a résumé of the tariff, to be divided into three several classes.

ART. 2. The customs code shall contain all the provisions at present in force which designate the articles whose importation is prohibited either through certain custom-houses or all over the Republic.

The importation into the Republic is forbidden of canes, umbrellas, etc., in which are concealed swords, daggers, or any weapon that may wound or inflict injury upon persons.

The following articles are also forbidden to be imported, except by the National Government: Artillery cannons of every form and class; mitrailleuses of every form; rifles, carbines, and other army weapons; swords, cavalry swords, sabers, and cavalry lances; percussion-caps, bullets, hand-grenades, and other projectiles used with fire-arms mentioned; rifles, guns, firelocks, muskets, and other war arms not especially intended for the chase; knapsacks, shoulder-belts, and all classes of fixtures for soldiers; and, generally, all instruments, apparatus, and objects which, not being naturally suitable for individual defense, are, in their nature, adapted to war or to the arming and equipping of troops.

ART. 3. The importation is also prohibited of false coins, or of coins less than 0.900 fineness, and of machinery for making coins.

ART. 4. Transportation through the national territory for commercial purposes is also forbidden to false money, and to the machinery, arms, and munitions mentioned in article 2 and 3 of this law, and to nitro-glycerine.

ART. 5. Twenty per cent. of the duties on each invoice shall be paid cash. For the payment of the remaining 80 per cent. the Executive Government, as soon as the requirements of the treasury shall permit it, may grant a delay of one hundred and twenty days, with interest at 12 per cent. per annum, which interest shall be calculated in advance and included in the respective bond to be signed for the whole amount. The payment shall be made whenever the Government may determine.

When the duty on any invoice does not exceed $500, no right of delay shall be made, but the payment of the whole sum shall be in cash. The delay may be declined by the importer.

ART. 6. The executive power shall appoint committees of inquiry, composed of three respectable merchants in each of the following places: Bogota, Medellin, Barranquilla, Cucuta, Bucaramanga, Carthagena, and Cali. Each commission shall have its respective substitutes, appointed by the executive power.

ART. 7. The following functions shall be exercised by the committee of inquiry:

(1) To propose the adoption of a complete and definite tariff of import dues to be observed in the custom-houses of the Republic.

(2) To propose, besides, to the executive power all the reforms that may be thought proper for the administration of the customs revenue and toward the improvement of the customs code.

(3) To present, in the month of May of each year, to the minister of finance of the Republic, a detailed report of the result of their inquiries and observations, in order that the said officer may render such reports to Congress.

ART. 8. All merchandise imported through the port of Buenaventura shall pay 2 per cent. less of import dues, and all goods imported through Tumaco shall pay 8 per cent. less.

ART. 9. The executive power shall make provision for the preparation, publication, and free circulation of a new customs code destined exclusively for this branch of the service.

The said code shall contain—

(*a*) The customs tariff.

(*b*) All the provisions of the fiscal code and other laws at present in force which refer exclusively to the customs department and a knowledge of which is important or convenient for consuls, ship captains, commission agents or consignors, customs officers, and importers.

(*c*) All decrees of the executive power issued in furtherance of the customs laws that may be useful for the better understanding and application of the said laws and of the new code; and

(*d*) All the supplementary provisions contained in this law. There shall likewise be inserted all the resolutions which, not being in conflict with this law, may have been issued by the executive power and may be deemed necessary for the better administration of custom-houses and the better understanding of the tariff.

In the compilation treated of in this article all such contradictory and conflicting matter shall be omitted which may tend to embarrass the collection of duties or hinder the administrative functions of custom-houses.

ART. 10. The executive power shall promote and negotiate agreements with the Panama Railway Company, with the Pacific Navigation Company, and, if necessary, with the Panama Canal Company, with a view to obtaining profitable reductions on the freight of merchandise transported by them and destined for the ports of Buenaventura and Tumaco, and thus encourage importations into the Republic through the Pacific ports. The same reduction shall, if possible, be obtained in the exportation of natural products through the said ports intended for other places.

ART. 11. In the same manner the executive power shall enter into agreements with the governments of the Empire of Brazil and of the United States of Venezuela with a view to facilitating and assuming the import and export trade through the Amazon and Oronoco rivers, and, consequently, through the Caqueta and the Putumayo, and through the Arauca and the Meta, through the Zulia and Lake Maracaibo.

ART. 12. Whenever any custom-house shall fail to receive a copy of the consular invoice, and is not presented with one by the party interested, the packages to which it should refer shall be examined, provided they are included in the statement of the cargo and declared in the manifest, and the duties thereon shall be charged conformably to the class of the tariff to which the goods belong, and a fine of 10 per cent. shall be added thereto.

ART. 13. Whenever, upon the examination of one or more packages, the party interested should dissent from the classification made at the custom-house of any of the manifested articles, he shall have the right to appeal to the minister of finance, and in such case the collector of customs shall send to such officer samples of the merchandise concerning which the application is made, in order that said minister may be able to decide with justice.

ART. 14. The luggage of ministers and diplomatic agents of the Republic who are returning home shall be exempt from duties up to the weight of 500 kilograms, provided the same be brought with them and that they declare upon their honor that their said luggage contains no articles intended for commercial operations.

ART. 15. The infractions of law treated of in article 325 of the fiscal code, or to be substituted for them in the customs code to be issued, shall be punished with the following penalties:

In the first case of the mentioned article, the captain of the vessel shall be fined from $500 to $4,000, in the discretion of the administration; in the second and third, the forfeiture of the merchandise and of the vessel or other vehicles in which the contraband goods are conveyed, even though they should not belong to the guilty parties; in the fourth, the captain of the vessel shall be fined from $5 to $50; in the fifth, the forfeiture of the vessels, with its sails and appurtenances; in the sixth, the captain shall be fined from $200 to $2,000; in the seventh, the forfeiture of the merchandise, which shall be sold at public auction and the proceeds turned into the national treasury, except such part as may belong to the informers and capturers and may have been incurred as judicial expenses; in the eighth, the captain shall be fined in a sum not exceeding $4,000, which fine shall be imposed without judicial trial by the chief officer of the custom-house; and in the ninth, if the deficiency consist in a want of a bill of lading, of marks, or of the numbering of the packages, a fine of 10 per cent. on the duties shall be imposed; and if it consist in the number of packages or in the weight or contents of the same, the following shall apply: In the last of these cases a fine of 25 per cent. shall be imposed, and in the first two the provisions contained in articles 97, 110, 114, 115, 116, and 117 of the fiscal code shall be applicable.

ART. 16. Colombian consuls charged with certifying invoices and statements shall carefully examine those documents, and when, upon examination or comparison, discrepancies or differences should be discovered in either, the said officers should give notice of same to those who presented such discounts, in order that they may be corrected; but if those interested insist upon the issuance of the certificates without the respective corrections, the consuls shall execute the same, having previously noted therein this circumstance.

For the violation of these provisions by the consuls they shall suffer a fine of $50 for each invoice and of $100 for each statement in which differences or discrepancies occur.

ART. 17. In case of a shipwreck near an open port of the Republic, the administrator of customs shall, as soon as advised thereof, appoint a commission from the custom-house officers, which, assisted by the public forces, if necessary, shall proceed to the wreck and render all possible help, protect the fiscal interests, and bring to the custom-houses all articles rescued from the wreck.

If the said articles so secured should not be destined for a port of the Republic, they shall be deposited in the store-rooms of the custom-house and such steps taken as are provided in article 82 of the fiscal code.

ART. 18. The executive power shall declare as imperative articles 10 and 11 of the treaty of friendship, commerce, and navigation between New Granada and Ecuador of the 9th of July, 1856, in all therein that relates to commerce through the river Carchi.

ART. 19. The port of Turbo, situated at the mouth of the river Atrato, is hereby declared an open port for exportation only.

ART. 20. Articles 46, 107, 108, 122, 123, 150, and 351 of the fiscal code are hereby repealed, and articles 152, 154, 155, and 326 of the same are amended by the provisions hereof; in like manner all provisions in conflict with this law are hereby repealed.

ART. 21. This law shall take effect ninety days after its approval, and at the same date the executive decree No. 449 of the 3d of August last stands repealed.

Given at Bogota on the 16th of October, 1886.

JUAN DE D. ULLOA,
President.
JOSÉ MARIA RUBIO FRADE,
Vice President.
ROBERTO DE NARVAÉZ,
JULIO A. CORREDOR,
Secretaries.

EXECUTIVE OFFICE, *October 26, 1886.*

Let this law be published and enforced.

J. M. CAMPO SERRANO.

ANTONIO ROLDAN,
Minister of Finance.

INCREASE IN EXPORT DUTIES.

[Inclosure in Mr. King's report of January 6, 1887.—Translation.]

LAW 88 OF DECEMBER 20, 1886, WHEREBY AN INCREASE OF 25 PER CENTUM IS LEVIED ON IMPORT DUES TO BE APPLIED TO SEVERAL OF THE NATIONAL DEPARTMENTS.

The National Legislative Council decrees:

ARTICLE 1. The import dues are hereby increased 25 per centum, which increase shall be paid cash and in accordance with the provision in article 205 of the constitution of the Republic.

ART. 2. The said increase shall be levied and collected in money at the custom-house where it is due, and it shall be sent directly, by the collectors thereof, to the superior finance officers of the departments to which it may belong.

ART. 3. The amount of the increase referred to in article 1 of this law shall be divided into twenty equal parts, to be distributed among the departments of Antioquia, Bolivar, Boyacá, Cauca, Cundinamarca, Magdalena, Santander, and Tolima in the following proportion: Three parts for each of the departments of Antioquia, Cauca, Cundinamarca, and Santander; two and a half parts each to the departments of Bolivar and Boyacá; two parts to the department of Tolima; and one part to the department of Magdalena.

ART. 4. From and after the date which, in conformity with this law, the department shall begin to receive their said proportion of the increase of import dues they shall not lay any dues either of transit, consumption, or export, whether national or foreign. Such taxes as, in conformity with law, may be assessed and collected under municipal ordinances shall be excepted from the provisions of this act. From the amount of the increase referred to in article 1 the several departments shall appropriate at least 5 per centum of their respective proportions for the improvement of their public highways.

ART. 5. The governors of the departments shall, at the close of each fiscal year, make a report to the minister of public works, stating the amount received from the distribution referred to in article 3, the extent of repairs made in the public highways as required in the preceding article, and the amount expended for same.

ART. 6. From and after eight months from the promulgation of this act the prohibition directed in article 4 respecting transit, consumption, and export dues shall begin to take effect.

ART. 7. The provisions of this law shall not interfere with rights acquired by grantees for the opening of roads, the construction of bridges, or other similar works.

ART. 8. The collectors of customs shall be held personally responsible for the punctual remittance to the respective finance officers of departments of all sums that may be due thereto under the provision distributing the increased dues.

Given at Bogota, December 15, A. D. 1886.

JUAN DE D. ULLOA,
President.
JOSÉ MARIA RUBIO FRADE,
Vice-President.
MANUEL BUGARD,
ROBERTO DE NARVAÉZ,
Secretaries.

EXECUTIVE OFFICE,
Bogota, December 20, 1886.

Let it be published and executed.

J. M. CAMPO SERRANO,

ANTONIO ROLDAN,
Minister of Finance.

ELEVEN TARIFF DECREES.

[Inclosure in Minister Abbott's report.—Translations.]

1. LAW 89 OF 1886.

In amendment of the custom-house regulations for the protection of industries, the National Legislative Council decrees:

ARTICLE 1. The duties upon niter and crude sulphur, in flowers, grains and cylinders, is hereby reduced to 1 cent a kilogram; and the Government is authorized, whenever it may deem it best, to increase up to 50 cents a kilogram the duties upon powder (black or white) for the use of mines, to the end that those who care to manufacture powder in Colombia may be enabled to sell the same to consumers at a less price than that of foreign powder.

The duty upon leaf tobacco and cigarette tobacco is fixed at 5 cents [per kilogram], and the duty upon manufactured tobacco at 70 cents [per kilogram].

ART. 2. No class of the fruits and industrial products of one department shall be subject to any tax whatever in any other department, but may be transported throughout the whole national territory free from every such impost.

But said products shall be liable to pay existing bridge tolls and such as may hereafter be established by law or ordinance; provided, however, that the present rates can not be increased.

ART. 3. The increase and the decrease of the duties mentioned in article 1 of this law shall be accomplished in accordance with the national constitution.

Law 36 of October last upon custom-houses is hereby amended according to the text hereof.

Given in Bogota, December 16, 1886.

Approved December 18, 1886.

2. LAW 65 OF 1887.

Wherein various exemptions are granted and certain powers given to the Government, the National Legislative Council decrees:

ARTICLE 1. The Government is authorized to grant, by means of contracts which shall not require the subsequent approval of Congress or the previous consent of the council of state, to industrial enterprises which shall be new to the country, and which, by their magnitude and importance, may merit temporary aid, exemption from import duties for a term not exceeding five years for the introduction of machinery.

ART. 2. Every artisan or farmer who shall come to labor in this country has a right to introduce free of duty, in addition to his personal baggage, such tools as are necessary to his employment, in the judgment of the Government, not exceeding 100 kilograms in weight.

ART. 3. The provisions of the preceding article are made applicable to foreigners who may have come to this country before the passage of this law to establish the cultivation of the [grape] vine and who may actually have done the same.

ART. 4. The owners of enterprises and the contractors who have been exempted by former laws who shall devote to the use of individuals articles imported free of duty, by virtue of any favors which shall have been granted them, shall be liable to a fine of from $1,000 to $2,000, which the executive power, after due proof of guilt, shall impose, without prejudice to the civil action, which the executive power can prosecute according as may be the case.

ART. 5. The articles which may be imported by Mr. Juan C. Arbeláez for the horse railroad, as to which he has a contract with the governor of the department of Antioquia, are hereby exempted from import duties.

ART. 6. The Government is authorized, if it deems best, to order an increase of duty over the tariff rates of not exceeding 30 per cent. upon merchandise imported from the Antilles.

ART. 7. The Government is authorized to place a duty of from 5 cents a kilogram up upon the exportation of new articles which may be discovered for exportation.

From the product of the impost there shall be granted a premium to the discoverer of the article of from $5,000 to $10,000, according to the importance of the article in the opinion of the Government, which, moreover, shall declare that the article is a novelty, first taking the judgment of three exporters.

The discoverer of the article shall have the right to export, free from the duty herein imposed, up to 50 cargas [250 pounds is a carga] of the new article during one year.

This duty shall not be collected after the discoverer shall have received his premium.

ART. 8. The Government shall have the power to decide whether articles whose free importation is desired by interested parties are intended for and adapted to the works, enterprises, and establishments exempted from the payment of import duties, and also the power to determine the quantity of such articles necessary, taking into account the importance of such works, enterprises, and establishments.

The acts done by the Government in pursuance of the powers herein conferred shall be of a definitive character, but may be reformed by the same Government, upon proof that, when action was taken, the Government was not in possession of all the data necessary for proceeding intelligently in the matter.

Given at Bogota, April 28, 1887.

3. LAW 10 OF 1888.

Wherein customs duties are decreased upon imports into the ports of Buenaventura and Tumaco, the National Legislative Council, considering, first, that merchandise imported into the ports of Buenaventura and Tumaco support a heavy burden compared to those imported into the Atlantic ports, on account of the high freights of the Panama Railroad and the Pacific steamers and the costly river and land transportation expenses; second, that this great burden fosters and maintains the smuggling which is carried on upon the frontier of Carchi; third, that the only way to stop this smuggling is to decrease the duties on imports, in order to take away the attractions which it (smuggling) presents; and, fourth, that the inhabitants of North and Central Cauca and South Antioquia—who are those who, by their situation in respect to the port of Buenaventura, are the consumers of merchandise imported through said port—support a burden greater than the other inhabitants of Colombia, decrees:

ARTICLE 1. The import duties of the present tariff are hereby reduced 20 per cent. upon merchandise introduced by the port of Buenaventura.

ART. 2. The import duties of said tariff are hereby reduced 30 per cent. upon merchandise introduced by the port of Tumaco.

ART. 3. The merchandise which may be exported from the port of Tumaco for Buenaventura or for one of the intermediate ports shall pay duties as if introduced for the first time.

Given in Bogota, January 31, 1888.

Approved January 31, 1888.

4. LAW 41 OF 1888.

Upon the introduction of money 835 fine, the National Legislative Council decrees:

ARTICLE 1. The Government is authorized, from and after the publication of this law, to permit the introduction into the custom-houses of the Republic of all legitimate money of the fineness of 835 milesimos.

Given in Bogota, May 5, 1888.

Approved May 5, 1888.

5. LAW 50 OF 1888.

The National Legislative Council decrees:

ARTICLE 1. The Government is authorized to increase, in such proportion as it may deem best, the salaries of the custom-house force in Cucuta.

ART. 2. The Government is authorized—

(*a*) To reduce the import duties upon articles of prime necessity for established manufactories, or for those which by such reduction can be established, provided that such articles can not be produced in the country.

(*b*) To reduce, also, the import duties upon fertilizers, such as phosphate of lime, sulphate of soda, etc.

(*c*) To pay for, once only, immigrants bringing machinery to establish themselves as industrial workers in the country up to $1,000, current money, according to the importance of the industry; and

(*d*) To foster in the country the industry of working and reducing ores by means of concessions equal to, or less than, those granted by law 22 of 1887 to Mr. James G. Gleen; provided that the grantees accept the obligations due from Gleen under that contract, or others which secure the rights of the Republic and the accomplishment of the end in view.

ART. 3. Agreeably to the provisions of article 205 of the constitution, the import duties at the custom-house of Cucuta are hereby increased 25 per cent., and the product is applied to the payment of the increase of salaries provided for by article 1 hereof.

This provision is exclusive of salt, which shall continue to pay $1.20 for every 12½ kilograms.

The duty or tax upon consular invoices exceeding four packages is hereby increased to $8, and the tax upon manifests to $20.

This tax shall be collected according to article 204 of the constitution, and its product applied, as far as it goes, to the expenses of the diplomatic service.

Given in Bogota, May 14, 1888.

Approved May 15, 1888.

6. DECREE NO. 537 OF 1888.

The President of the Republic of Colombia, in execution of law 50 of the present year (Diario Oficial 7386), decrees:

ARTICLE 1. The import duties upon the following articles for the manufactures of vermicellis and other flour preparations of the same class are reduced to 1 cent a kilogram, to wit: Wheat flour prepared for the vermicellis, etc., blue wrapping-paper, and boards for packing-boxes.

ART. 2. In order to take advantage of the reduction, manufacturers should follow the rule prescribed for importations of lead and quicksilver designed for mining purposes, according to decree 382 of this year (Diario Oficial 7368).

Done in Peñanegra, June 12, 1888.

7. DECREE 382 OF 1888.

The President of the Republic decrees:

In order that the custom-house officers can decide that lead and quicksilver, apparently imported for that purpose, are in reality designed for use in mines, the importers should follow the rules laid down in other cases by article 33 of decree 533 of 1882 and article 1 of decree 731 of 1887 (Diario Oficial 5490 and 7242), and should further present to the minister of hacienda a certificate from the governor of the department in which the mines are situated for which the materials are designed, stating that the importer is the owner of the said mines and the probable time required for their consumption.

Done in Bogota, April 26, 1888.

8. SPECIAL DUTY EXEMPTIONS.

ARTICLE 33. The following are the rules to be observed for obtaining special exemption from the payment of import duties:

(1) The provisions of article 134 of the fiscal code will govern in the case of the baggage and effects of diplomatic agents.

(2) The articles named in Nos. 9, 12, 15, 16, 18, 23, 24, 28, 32, 42, 46, 47, 48, 49, and 52 and in the last part of class 1 of the tariff, according to the compilation published in No. 4776 of Diario Oficial; in laws 2, 5, 7, 10, 13, 23, 30, 38, and 53 of 1881 and 5, 8, 13, 26, 45, and 55 of 1882; and, in general, all articles which may have been declared free by special laws or by contracts made by the executive power, must be accompanied by a statement of the importer declaring clearly the name of the state, corporation, or person favored by the said legislative or executive acts and the work, enterprise, or object for which the said articles are designed. The customs officers will make the usual examination, compute the duties according to the tariff, and deliver the goods to the importer, taking from him the corresponding bond, with a surety for the payment of the duties at the expiration of four months, if in the meantime the order of the secretary of hacienda for total or partial exemption shall not be received. The manifest shall show all these facts.

(3) In order that the secretary of hacienda may give the order for exemption from duties within the given time, there shall be opportunely presented to him by the corporation, enterprise, or person favored as aforesaid a petition accompanied by the original invoice sent by the shipper of the articles named in the manifest. Petitions of districts shall be in the name of the president of the municipal corporation and those of public establishments in those of their respective directors, and should be forwarded by the government of their respective states. The petitions of states and those of enterprises favored by law or contract celebrated with the executive power, as well as those of importers of seeds under rule 5 of this article, should be sent directly to the secretary of hacienda.

(4) Said secretary shall examine the invoices, shall request of other secretaries such information as he may deem necessary, and shall give an order for exemption, provided no reason to the contrary appears, either as to the quantity of the articles or as to their due application to the declared purpose of their importation. In case of apparent objections, these shall be communicated to the petitioner and a time fixed in which he may reply thereto and present such other vouchers as may be demanded or esteemed necessary, and an order shall be given to the customs officers to exempt such of the articles named in the invoice as may not be objected to and to suspend the collection of the rest if the period of four months shall terminate before the time fixed for receiving the answer of the petitioners. At the end of said time, unless the secretary of hacienda may have given an order of exemption, the customs authorities shall demand payment, with interest from the date of importation if the sum be less than $100, or from the date of the termination of the four months if the duties exceed that sum.

(5) In cases of the importation of articles which—as, for instance, wheat—can be used as seeds or immediate consumption as food, if the importer states that the articles are imported for the sole object of being sown, the secretary of hacienda shall extend the time sufficiently to grant opportunity to prove that the said articles have been used for that purpose.

The provisions of this article are made applicable, so far as may be, to pending cases.

9. DECREE NO. 731 OF 1887.

The President of the Republic, in view of section 5, article 32, of the fiscal code; article 13 of the law 61 of 1882, by which the executive power is authorized to determine the formalities to be observed for importations free from duty; and article 8 of law 65 of the present year (Diario Oficial 7040), which declares that "the Government shall have the power to decide whether articles whose free importation is desired by interested parties are intended for and adapted to the works, enterprises, and establishments exempted from the payment of import duties, and also the power to determine the quantity of such articles necessary, taking into account the importance of such works, enterprises, and establishments," decrees:

ARTICLE 1. In the memorials with which are presented to the minister of hacienda the invoices provided for in decree 533 of 1882 (Diario Oficial 5490) upon a request for exemption from duties for enterprises specially favored by law, the interested parties must make oath that the articles in question will be employed exclusively in such enterprise.

ART. 2. The customs officers will scrupulously examine the packages containing the articles which may be exempted from the payment of duties, to prevent the free introduction of articles not subject to exemption, as well as to prevent the importation of unnecessary amounts.

ART. 3. Decree No. 533 of 1882 (Diario Oficial 5490) is made a part of this decree.

Done in Anapoima, November 24, 1887.

10. DECREE NO. 802 OF 1889.

The President of the Republic of Colombia, in execution of section 2, article 2, of law 50 of 1888, decrees:

ARTICLE 1. The import duties on artificial guano are reduced to 5 cents a kilogram.

The reduction shall take effect according to article 205 of the constitution of the Republic.

ART. 2. To take advantage of the reduction, the importation of said articles should be made with an invoice in which appears the oath of the shipper that the contents of the packages named in the invoice are, in fact, "artificial guano," and with a manifest in which the importer takes the same oath.

In case the custom-house authorities are of the opinion that the said contents are not artificial guano, the proceedings will be those laid down in decree No. 39, of 1887 (Diario Oficial 6927).

ART. 3. Decree 537 of 1888 (Diario Oficial 7430) is hereby made a part of this decree.

Done in Bogota, October 4, 1889.

11. LAW 129 OF 1888, UPON CHANGES IN THE TARIFF UPON CERTAIN ARTICLES.

The Congress of Colombia decrees:

ARTICLE 1. The foreign merchandise hereinafter named shall be subject, according to the time fixed by article 205 of the constitution, to the following import duties per kilogram:

Stamps and dies of iron, steel, or bars for mills used to grind ore	$0.01
Steel drills for mines	.05
Steel bars for manufacture	.02½
Quicksilver	.02½
Dynamite for mines	.05
Hops	.05
Machetes,[*] up to 20 inches in length	.05
Claret wine, Bordeaux, Burgundy, Catalán, and San Rafael medicinal wine, in bottles	.05
Tobacco, manufactured into cigarettes or cigars	.20

The following articles used for the separation of metals by "chlorination:"

Sulphuric acid, bromine, bromides of potash and soda, carbonate of soda, and caustic soda	$0.01
Ice, hay, and straw, unmanufactured	.01
Machinery for mines and houses of iron	.01

ART. 2. In addition to the concessions granted by former laws, the import duties upon plain cotton fabrics introduced into the custom-house of Tumaco are reduced 25 per centum.

ART. 3. As to articles coming from Ecuador, the Government is authorized to change the tariff on imports according to the necessities of the people and the interests of the treasury.

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[*] A kind of large knife peculiar to the country.

ART. 4. The Government has the power to order the receipt of lawful money of $835 milesimos in payment of 20 per cent. of the import duties of the custom-house of Cucuta, in place of the 25 per cent. increase authorized by article 3 of law 50 of 1888 (May 15).

The same provision is made applicable to importations into the custom-house of Arauca.

ART. 5. Furniture (used) brought in by the envoys extraordinary and ministers plenipotentiary of Colombia upon their return to the country shall pay 1 cent a kilogram.

Given in Bogota, November 15, 1888.

Approved November 27, 1888.

AUSTRALIAN SILVER.

REPORT BY CONSUL GRIFFIN, OF SYDNEY.

The passage of the United States silver bill and the extraordinary rise in the price of silver incident thereto have directed my attention to the silver mines of Australasia. The advance in the price of silver has already made a difference in the annual value of that product in New South Wales alone of more than $1,946,600. In three days the price advanced from 85 cents per ounce to 91 cents, and it is now quoted at $1.10 per ounce. This advance is likely to have a marked influence upon the trade relations between Australia and the eastern countries, and may result in the establishment of a direct exchange between these colonies and China and Japan. To illustrate the effect of the advance, I will mention that notice has been given to the railway commissioners of Victoria of the termination, after October 31 next, of the existing contracts for the supply to them of oils, the prices of castor-oil, linseed, and China oil being affected by the higher sterling value of the rupee sufficient to upset the basis of the contract. There is now much speculation as to the price of silver reaching its par value ($1.22 per ounce); but, whether it reaches that price or not, importers seem less cautious than usual as to the purchase of eastern goods. In the meantime the products of Australasian silver mines have become more and more valuable to the shareholders through the increase in the price of silver.

VICTORIA.

Although silver-bearing lodes have been discovered in each of the seven Australasian colonies, very little has been done in the way of working them except in New South Wales. The minister for mines of Victoria states in his annual report for 1889 that none of the Victorian silver lodes yet discovered are regarded as of sufficient value to justify the investment of any large amount of capital in their development. The mines in the St. Anaud district, the minister says, have very bright prospects; but even these, up to the present time, have not led to the opening up of a payable lode. Several mineral leases were taken up in the Killawarra ranges, about 8 miles from Wangaratta, one of which was worked for a time by the Messrs. Brice Bros., but on assay the ore only gave 7 grains of silver and 2 grains of gold to the ton.

NEW SOUTH WALES.

New South Wales, as previously mentioned, is the chief silver-producing colony in Australasia, its annual output being 90 per cent. of that of the whole of the group; and it is said that the Broken Hill Proprietary Company's mine in the Barrier ranges is the largest and richest silver mine in the world. It is certain that it is the most important in Australasia and produces more than two-thirds of the entire silver product of the colonies. The minister for mines, in his report for 1889, says that very favorable returns have been received from the silver-mining districts. He regrets, however, that proper means for the reduction of the ore are not available in the colony and that it has to be sent to England for treatment. He says:

> This state of affairs shows that the colony has yet much to learn before it will be able to reap the full benefit of our extensive argentiferous deposits.

The value of the silver product has steadily increased since 1876, when it first began to be looked upon as a paying industry. In that year the product amounted to only $6,777.16; in 1881 it was $892,661, and in 1889 it was $9,592,834. I give below a table showing the quantity and value of silver and silver-lead ore exported from New South Wales for each year from 1871 to 1889, inclusive:

Year.	Silver.		Silver and lead ore and silver-lead bullion.				
	Quantity.	Value.	Ore.		Metal.		Value.
	Ounces.		*Tons.*	*Cwts.*	*Tons.*	*Cwts.*	
Up to 1871	86,668.14	£22,865	307	0	...		£6,530
1872	49,545	12,663	...		...		...
1873	66,998	16,278	...		...		...
1874	78,027	18,880	...		...		...
1875	52,553	12,794	...		...		...
1876	69,179	15,456	67	0	...		1,392
1877	31,409	6,673	20	12	...		325
1878	60,563	13,291	5	0	...		258
1879	83,164	18,071	18	13	...		535
1880	91,419	21,878	27	14	...		890
1881	57,254	13,026	52	14	...		1,625
1882	38,618	9,024	11	19	...		360
1883	77,065.18	16,488	136	4	...		2,075
1884	93,660.25	19,780	9,167	11	...		241,940
1885	794,173.80	159,187	2,095	16	190	8	107,626
1886	1,015,433.10	197,544	4,802	2	...		294,485
1887	177,307.75	32,458	12,529	3	...		541,952
1888	375,063.30	66,688	11,739	7	18,102	5	1,075,737
1889	416,895.75	72,001	46,965	9	34,579	17	1,899,197
Total	3,714,996.27	745,025	87,676	9	52,872	10	4,174,927

It will be seen from the preceding table that the total value of silver and silver-lead ore exported from New South Wales since 1871 was £4,174,927 ($20,317,282). According to the report of the minister for mines for 1889, a number of mines that had been abandoned were at work again during the year.

The minister states, however, that—

> In the Tuena district the Cordillera and Peelwood mines were only working at intervals, and, consequently, there was a falling off in the returns in that division.

The Mount Costigan has started again, and is working successfully. The Sunny Corner Mine, which was at one time the richest in the colony, the product of which declined some years ago, has revived again; in 1889 the value of the metal produced therefrom was $236,696, against $186,444 for 1888. The Silver King, in the same district, melted 11,099 tons of ore, producing 1,018 tons of matte, valued at $210,461.

The mines in the Orange district are reported to be in a prosperous condition, their produce amounting to $98,867. The mines in the Inverall district have done fairly well. The Castle King Company is reported to be in fine condition. The New England Company has done a large amount of work. Assays of ore from this mine have given as high as 700 ounces of silver and 60 per cent. of bismuth per ton. The White Rock Silver Mining Company is at work again, and it has about 30,000 tons of rich ore ready for treatment. A cut has been made in the face of the hill a distance of 60 feet, exposing numerous veins of rich ore. At Wongatah the silver lodes are said to be large and well deposited.

During the year 1889 there were 3,009 assays made for silver in the department of mines; 1,481 of these did not yield any thing, and 1,378 yielded under 20 ounces of silver to the ton, and 150 samples yielded from 26 ounces to 7,482 ounces per ton. The latter was a sample calcite, with chloride of silver, found at Armidale. A sample of carbonate of lead found 12 miles northwest of Dennistontown yielded 472 ounces per ton. A sample of ferrugenous quartz from the Gulgong gold field gave 397 ounces per ton, and a sample of quartz and feldspathic rock with antimonial sulphide of silver gave 1,215 ounces 6 grains 3 pennyweights of pure silver per ton, and a sample of silicons, yellow gossan with carbonate of lead, found in the New England district, gave 400 ounces per ton.

Northwest of Glen Innes a well-defined vein of argentiferous galena has been discovered in a belt of hard slate and other metamorphosed rock. A shaft put down by a party of miners to a depth of 70 feet disclosed a highly mineralized formation of not less than 8 feet in width. A sample of ore sent by the warden to the Government assayer for analysis gave massive galena, with a trace of blende and a few specks of copper pyrites. Silver was first found in the Barrier ranges at Thackaringa, but it did not appear as if it could be mined profitably. It was soon afterwards found in greater quantities at the Umberumberka, 12 miles from Thackaringa.

The lodes in the Barrier ranges occur in silurian metamorphic micaceous schists, intruded by granite porphyry, and diorite, traversed by numerous quartz reefs. Professor Liversidge, of the Sydney University, reported on this district several years ago and stated that these veins are very rich in chlorides of silver. One specimen from Lubra gave 8,493 ounces to the ton, and as high as 16,000 ounces to the ton were obtained from the surface slugs.

The term "slug" is applied by the miners to loose masses formed on the surface. They are generally of a dirty green or brownish color. When struck with the pick they present the usual characteristics of masses of silver chloride, being very tough and horn-like, with a smooth, shining surface. One of these slugs, from a vein 17 feet wide, gave the following analysis:

	Per cent.
Chloride of silver	81.57
Bromide of silver	10.19
Oxide of iron, alumina, silica, etc	8.14
Total	100

Another specimen gave the following:

	Per cent.
Moisture	0.48
Chloride of silver	72.22
Iron carbonate	4.26
Alumina	2.33
Carbonate of lime	6.40
Carbonate of magnesia	3.75
Insoluble in acids	9.70
Undetermined	0.85
Total	99.99

Professor Liversidge says that some of the specimens of the silver chlorides are well crystallized; the octahedra are fairly distinct, and are fully one-eighth of an inch in length, being generally attached to one another in incipient branching forms of a greenish shade, with horn-like translucency. In one vein at Broken Hill the stuff is a white, earthy mineral, resembling kaolin, and is therefore called the Kaolin Vein. The greenish crystals and plates of silver chloride crystallized on some of the smooth surfaces have a bright and pleasing effect.

About 3,000 miners are employed at Broken Hill, 2,300 of whom are at the Broken Hill Proprietary Company's mine, 200 are at the Umberumberka, and the remainder at various other places. The warden states that a vast amount of prospecting is being done all over the district, mineral ledges being taken up in every direction. The whole of the country, the warden says, is undoubtedly metalliferous.

At the Pinnacles, situated 12 miles from Silverton, the present center of the silver district, new concentrating plants have been established, and 200 men are employed and about 500 tons of ore are reduced per week.

An English company, with a capital of $729,957, has been formed to work the Cornoua lode, which is said to be one of the richest in the district.

About 20 miles west of Broken Hill is the metalliferous zone known as Parmamoota. When this zone was first discovered blocks of almost pure silver were found near the surface, many of which yielded from 70 to 80 per cent. of silver. Rich chlorides crop up here and there, but no extensive lode has yet been found. The Treasury, War Dance, Lubra, and Hidden Secret are among the most important mines there.

In a northwesterly direction lie the Maybell and Maybell North mines. These mines, according to the Australian hand-book, are very rich in chlorides; the seams, however, are of no great dimensions. It is not unusual for 3 or 4 tons of Maybell ore to return $2,433 worth of silver. Among the difficulties in the way of mining in the Broken Hill district is the want of a suitable flux and a regular supply of water near at hand. The latter is being remedied by extending the surface drainage and by artesian boring, and fluxes are said to exist in abundance in the calcite and limestone veins at Pernamoota and Tarrawingee. The tram-way lines are being extended for the purpose of carrying these materials to the veins. Considerable attention is paid to prospecting for limestone, marble, and calspar, believed to be abundant in the western part of New South Wales, near the border of South Australia, a distance of 822 miles from Sydney. The principal mine in the district, as previously stated, is that of the Broken Hill Proprietary Company. The mine was originally held in 14 shares, which were afterwards increased to 16,000. It now has 960, which were fixed at $1.95, thus making the nominal value $1,868,736; but at the present market value, say $63.26 each, it would amount to $50,733,920. There has never been a call for capital since the formation of the company, and the board of directors is composed of some of the foremost business men in Australia, and the acting manager, Mr. John Howell, has had large experience in the conduct of several famous silver mines in the United States. The annual profit to the share-holders is considerably over $4,866,500. Extensive preparations have been made for the reduction of the ore on the spot, and I learn from a report of the acting manager which has just been published that they have erected a number of valuable smelting works, including six 80-ton furnaces. In a short time, it is said, thirteen water-jacket furnaces, each of 80 tons capacity, will be available, and twelve will be kept in blast constantly. In addition to these, the company possesses valuable concentrating, leaching, and refining works at Port Pirie, where the company's shipping wharves are located. About $1,459,950 have been expended by the company in the erection of machinery and plant. During the six months ended the 31st of May last there were extracted from the mine 103,399 tons of ore. This was treated in the ore-dressing plant and furnaces. The total quantity of ore smelted was 80,127 tons, net, yielding 3,814,486 ounces of silver and 15,400 tons of lead, or an average of 47.60 ounces of silver and 19 per cent. of lead to the ton of ore. This has been mined and put into the surface bins at a cost of $4.31 per ton. The manager says:

> As the work of development progresses, new and extensive ore bodies are being discovered, and recently opened sections, which a few months ago were of doubtful value, are now showing new breasts of payable ore. There are still larger blocks of similar ground to open, and these discoveries not only add to the developed wealth of the mine, but also to its prospective value, which, steadily increasing as the work of opening out proceeds, give constantly convincing proofs of the magnitude and permanence of the property, which, considering its greatest prospective value, may be safely designated as the greatest silver-lead mine in the world.

The total amount of dividends paid reached the large sum of $7,903,196; the total amount of cash bonuses paid to the share-holders was $2,880,968. The nominal value of the shares received from the various companies formed from the original Broken Hill Company was as follows: From Block 14, $2,102,328; from the British Company, $1,946,600; from Block 10, $4,438,248; a grand total, including dividends, bonuses, and bonus shares, of $19,271,340.

The results are certainly very gratifying, especially at a time when there has been such an extraordinary advance in the price of silver; and it is reported that the extensive ore breasts throughout the mine continue to yield a good general average grade of ore, and that the mine is in better condition than at any previous time. The extensive bodies of lead carbonates, kaolin, and other descriptions of ore, which for years have been supplying the works, and which are known to exist in large bodies on the line of and below the main working level, are yet almost intact. A third main working level, at 300 feet, has been started. This level will be pushed along until it reaches, longitudinally, the north and south boundaries of the mine, and will be connected with all the main shafts. The whole mine will then be thoroughly and systematically opened on the line of the level. The Broken Hill Proprietary Company's mine consists of three blocks, known as 11, 12, and 13. Block 11 is by far the richest of the three. The main lode was discovered in this block, and its enormous value can scarcely be realized. The great body of the ore lies in the most southern part of the company's property. It was found 200 feet from the surface and is known to be 220 feet in width. It is described as being by far the largest in size and richest in quality of any ore hitherto discovered in Australasia. In other parts of the mine, where the working is at a depth of 400 feet, the lode, while decreasing in size, increases in richness. The subjoined table shows the quantity of ore treated by the Broken Hill Proprietary Company's mine, together with the amounts of silver and lead produced, the value of the same, and the average cost per ton of ore for each half-year from November 30, 1885, to November 30, 1890, inclusive:

Quantity of ore treated by the Broken Hill Proprietary Company's mine.

Half-year ending—	Ore treated.	Silver produced.	Lead produced.	Total gross value.*			Total expenses, including depreciation.†		
	Tons.	*Ounces.*	*Tons.*	£	*s.*	*d.*	£	*s.*	*d.*
November 30, 1885		35,605		7,442	12	11	4,644	15	4
May 31, 1886		144,604		37,053	5	2	24,199	3	8
November 30, 1886	10,397	871,665	1,991	157,215	9	0	70,345	10	6
May 31, 1887	18,411	835,526	2,836	204,559	0	7	121,921	2	2
November 30, 1887	28,800	1,267,699	6,512	287,704	15	6	167,503	10	1
May 31, 1888	39,789	1,633,737	6,774	373,034	16	4	179,799	9	4
November 30, 1888	54,336	2,290,455	9,885	512,367	1	10	237,968	4	1
May 31, 1889	68,545	2,677,686	11,418	585,897	12	8	293,172	4	10
November 30, 1889	88,639	3,325,613	13,659	744,931	1	10	335,575	19	1
Total	308,917	13,082,590	53,075	2,910,205	15	10	1,435,129	19	1

* Net returns received in London.

† Irrespective of London realization charges.

Quantity of ore treated by the Broken Hill Proprietary Company's mine—Continued.

Half-year ending—	Ore treated, per ton.			Disbursement of profits, less balances and stocks in hand.	
	Value.	Average cost.	Profit.	Dividends and bonus.	Construction, less depreciation.
	£ s. d.	£ s. d.	£ s. d.		£ s. d.
November 30, 1885	......	......	......	......	2,582 15 11
May 31, 1886	......	......	......	......	18,737 8 8
November 30, 1886	15 2 5	6 15 4	8 7 1	£48,000	10,612 9 5
May 31, 1887	11 2 2	6 12 5	4 9 9	80,000	14,641 16 4
November 30, 1887	9 19 6	5 16 4	4 3 2	96,000	27,416 6 11
May 31, 1888	9 7 6	4 10 5	4 17 1	152,000	39,603 3 2
November 30, 1888	9 8 7	4 7 7	5 1 0	192,000	25,877 8 2
May 31, 1889	8 11 0	4 5 7	4 5 5	240,000	40,862 1 5
November 30, 1889	8 8 1	3 15 9	4 12 4	368,000	2,341 17 10
Total	......	......	......	1,176,000	182,675 7 10

To the end of May, 1890, an additional £464,000 has been paid in dividends, the yield of silver and silver-lead having been, respectively, 2,900,000 ounces and 12,200 tons from 63,000 tons of ore.

Some time ago the company decided to sell a portion of their property to other companies, and the parts disposed of are now known and worked under the names of British Broken Hill Proprietary, Block 10, and Block 14. This property was originally leased from the Government by the Broken Hill Proprietary Company, the term of lease being for twenty-one years, with an annual rental of $1.22 per acre, with the right of removal. The property consisted of over 10 acres on the lode, with adjacent leases for water conservation purposes.

The British Broken Hill Proprietary Company's mine bounds Block 14 on the north. This company, the hand-book of Australian mines states, has 101 acres in two blocks, the southern of which so far has received most attention. This ground was acquired by an Anglo-Australian company late in 1887, and British investors may congratulate themselves upon having secured a large interest in one of the most suitable mines on the field; indeed, so far as can be seen at present, next to Broken Hill Proprietary, the most valuable. It is managed by an American expert, and the claim has been thoroughly opened up to 400 feet. The width of the lode at the 200-foot level has been proved to be 50 feet, carrying an average of 30 per cent. lead and over 20 ounces of silver. The lode consists principally of carbonate of lead and galena.

This company has extensive concentrating works, erection of which has been superintended by Mr. Holly. It has now four 60-ton furnaces erected at Port Pirie (whither the ore is taken by train) under the superintendence of Messrs. Greenway and Board. The first furnace was blown in July, 1889, and during the remainder of the year they produced 300,000 ounces of silver and 2,500 tons of lead. The returns for the first four months of 1889 have been: Ore smelted, 14,394 tons; bullion produced, 2,653 tons, containing 269,301 ounces of silver. No dividend however, it is said, may be expected from this company until the beginning of 1891, all profits having so far been more than expended in machinery. The Broken Hill Junction is the next mine northward. It has an area of 51 acres. The mine management is in the hands of Mr. Adams, another American expert, who took charge in March, 1890. This property is situated on an elbow of the lode, which, though at times distorted and irregular, carries exceedingly rich chloride of silver and native silver, with cerussite (carbonate of lead) in larger quantities. The lode has now been proved at and for some distance below the 300-foot level to maintain its character for richness, while at this depth it also appears somewhat more settled. Two 60-ton furnaces have been erected by this company at Port Adelaide, but the wisdom of locating the reducing plant so far from the mine and in a place to which all fluxes have to be conveyed some distance is questionable. Certainly, the freight on coke from the sea-board is saved. Before the erection of the furnaces the company had whatever ore it dispatched from the mine treated at Dry Creek Smelting Works, near Adelaide. Since the furnaces were blown in the returns, up to April 24, were: Ore treated, 2,827 tons; bullion produced, 288 tons, containing 141,761 ounces of silver. It is at this mine that the "vughs," containing quantities of almost pure silver, are principally met. There are several other companies in the neighborhood—Broken Hill, South Central, etc.—and nearly all of them are producing from 2,000 to 25,000 ounces of silver per week. There are other mines in the district attracting attention, viz, the Cosgrove and the Round Hill and Brisbane Blocks. On the Brisbane Blocks the diamond drill is being employed to test the country to 2,500 feet, and at the beginning of April over 2,000 feet had been penetrated. The bore has been put down in the hope of intercepting the main Broken Hill lode as it dips into the Brisbane Blocks. Originally it was expected that the strike would be made at about 1,600 feet, but it has not yet occurred. At about 1,800 feet a small detached pocket of fairly good argentiferous ore was found. The town of Broken Hill (Silverton), the center of the mining district, has about 17,000 inhabitants. Ten miles north is a range of hills known as Mount Darling, where a number of mines have been opened. Of these the Silver Ring and Eagle Hawk are said to have produced the finest specimens of native silver hitherto found in the colonies. There is connection by railway to Broken Hill and thence to Adelaide, South Australia.

QUEENSLAND.

The minister for mines in Queensland reports silver mining to be in a satisfactory condition in that colony. The mines have been worked for several years, but the output is small; indeed, it is difficult to estimate the value of the produce, as it is returned with that of lead. The products in 1889 amounted to $299,289, against $214,199 for 1888. The mines at Herberton, the minister states, have a bright outlook. The facilities for smelting are very poor, and the great bulk of the ore is sent to England for reduction.

The colonial geologist, Mr. Robert L. Jack, F. G. S., F. R. G. S., states that there are immense deposits of silver in Mount Albion, but that they occur in an irregular manner. In the Albion, Lady Jane, and Booroora mines, he says, the faults are more numerous than the appearance at the surface would indicate. Fissures formed by faults intersect one another in every direction, so that there are no definite walls which can be followed for any distance. The ores are earthy and furruginous, with argentiferous lead oxides and carbonates. Mr. Jack says that the frequency of silver chlorides in fine particles may account for their occasional extraordinary richness. Plugs of horn silver are from time to time met. He says:

> In marked contrast to the deposits of ore on Mount Albion are those which occur about 1½ miles to the southeast. A large lode—the Silver Hill, which might be taken as a typical example of what is meant by a true fissure lode—runs north and south through slate country underlying at 45° to the west. It is distinctly traceable across two hills and two gullies for a distance of 1,500 feet by occasional exposures of galena.

In the workings the galena ore runs from 9 inches to 3 feet in thickness, and is occasionally associated with anglesite, zinc, blende, and pyrites, and is accompanied by a brecciform gangue of broken country rock. The ore, although more than payable, is not nearly so rich in silver as that of Mount Albion. The mines at the Orient Camp, 6 miles northeast of Mount Albion, produce a similar class of ore to that of Silver Hill.

The mines in the Argentiferous Silver Field have been worked since 1881, and the lodes, especially in the mica schist country, are described as rich and likely to be permanent. The Hero and Northbrook are thought to be the best mines in that district. The surface ores, oxides, carbonates, sulphates, and sulphides samples were assayed by the Government geologist, averaging 1¼ ounces per ton to the unit of lead and occasionally 5 ounces of silver to the unit. In other words, a ton of galena ore containing 60 per cent. of lead averages from 75 to 300 ounces of silver. The Selheim Silver Field is reported by the Government geologist to contain a number of very valuable lodes, among which are the Pyramid, Bonnie Dundee, Birthday Gift, General Gordon, Sunrise, and the Argentine. The mines appear to be situated in a series of blue and gray slates, upon the upturned edges of which rest the slightly inclined grits of sandstone of the Upper Devonian Leipeidodendron beds. The mines have been worked under considerable difficulties, owing to their great distance from the coast and the absence of smelting works on the spot. Important silver mines were discovered 22 miles west of Herberton by two brothers named Prentice, who sold these claims to Messrs. George Young & Co. The new owners erected smelting works and developed the mines at a cost of $97,330 before they received any return therefrom. After twelve months' work they extracted 250,000 ounces of silver and a large quantity of lead. The mine was put on the London market and floated for $973,300 in 1889. Another important discovery of silver was made in the same district. The ore was traced for more than 100 feet, from the end of the north to the end of the south drive, and winges sunk at different points proved the continuance of the ore to a considerable depth, there being apparently hundreds of tons in sight. The minister for mines complains that the ore can not be treated on the spot successfully for the want of proper appliances. The ore is picked, bagged, and sent to England for treatment. Twenty-six tons that were shipped last year yielded 96,000 ounces of silver. Improved smelting works are being erected, and, during the first quarter of 1890, 68 tons of ore were smelted which averaged 40 ounces of silver to the ton. Much of the ore in the district is mixed with copper.

SOUTH AUSTRALIA.

Very little progress has been made in the development of the silver mines of South Australia, some of which have been opened and worked at intervals for more than thirty years. The Talsker mine, about 60 miles from Adelaide, was opened in 1862, and five lodes were discovered, but only one of these was worked successfully. During the period of ten years sales of ore were made to the extent of $77,864. The proceeds of the bullion smelted amounted to $145,434. The prices obtained ranged from $142.11 to $217 per ton. The quantity shipped was 839 tons 4 cwts. and 4 pounds, containing from 62 to 91 ounces of silver to the ton. The lead brought from $78 to $107 per ton. The average cost for freight, commission, and other charges for sending the bullion to London for sale was 6¾ per cent. The most promising silver mines of South Australia appear to be in the southern part of the colony. The Talsker, George, and Campbell Creek mines are said to offer great inducements to capitalists. Attention, however, has been directed from these mines to those in the Barrier ranges, which, although not in the colony of South Australia, are very near to it and are likely to exercise great influence on the commercial prospects of that colony; and, besides, it is not improbable that the rich argentiferous deposits of the Barrier ranges extend some distance within the borders of South Australia.

A silver mine has been discovered 45 miles north of Yunta, on the Broken Hill Railway, the ore of which averages from 40 to 45 ounces per ton. The Alamanda silver mine, 20 miles southeast of Adelaide, was first worked for copper. In 1887 the engine shaft was sunk 126 feet, and argentiferous ore was found which averaged from 88 to 163 ounces of silver per ton. The Aclare mine is said to be the best in the colony, its ore yielding from 80 to 90 ounces of silver to the ton and 50 per cent. of lead. Several silver mines have been opened up at Beltana, 400 miles north of Adelaide. A mine called the Endicara, 20 miles from Beltana and 160 miles from Port Augusta, was opened up in 1888. The first bore revealed very rich deposits. A large chamber was excavated in the side of the hill 50 feet in length from east to west and 6 feet in height. The roof of this excavation is supposed to be the hanging wall of the lode, which is of large size and full of both carbonates of lead galena with gossan. The ore has an underlay to the east of about 2½ feet to the fathom. At this point it assayed 12 ounces of silver to the ton and 28¼ per cent. of lead to the ton. The mine is said to be the result of the upheaval of a powerful lode thrown over and afterwards covered by a layer of limestone.

WEST AUSTRALIA.

Several silver and lead mines have been worked in this colony by English capitalists, the ore being sent to England principally for the lead in it. It was formerly shipped as ballast. Much of this ore is now known to be rich in silver, and the Government is taking energetic steps to promote this branch of mining. It is estimated that up to the present time the total value of the silver and lead product of the colony is about $145,995.

TASMANIA.

Silver lodes have been known to exist in Tasmania for many years, but very little has been done in the way of development. The ore is said to be spread over an area of 30 square miles in the Mount Zehan district, and some of it averages from 60 to 70 ounces per ton. Twenty-four thousand acres have been taken up for mining in the district. The ore raised at one of the mines last year amounted to $5,986. The Comstock and Silver Bell Company are reported to be doing good work. The latter mine had, on the 30th of June last, 1,000 tons of first-grade ore at Grasse. An English syndicate is working a mine called the Silver King Extended, and the ore is said to be quite equal to that of some of the richest in the Barrier ranges.

NEW ZEALAND.

A number of silver mines have been opened in New Zealand, and the most promising of these are in the North Island; but the silver returns of the colony amount to very little. Sir James Hector, the Government geologist, states that the argentiferous galena ore in various parts of the colony yields from 20 to 50 ounces of pure silver to the ton, and that in some cases the galena is mixed with iron pyrites which gives a fair percentage of gold. More attention is given to silver mining in the North Island, and particularly in the Thames gold field district, than elsewhere. The Aroha and Maritoto silver mines were profitably worked some years ago, but were subsequently abandoned. Companies have been formed in Sydney and Melbourne during the last few months for the purpose of developing them with improved mining appliances. Silver occurs with galena and zinc in Nelson, and one or two mines have been opened there, but were not worked profitably.

The annual exports of silver from New Zealand amount to about $4,866, the bulk of which is not obtained from silver mines direct, but from the gold product during the process of refining that metal at the mint.

G. W. GRIFFIN,
Consul.

UNITED STATES CONSULATE,
Sydney, September 2, 1890.

NITRATE OF SODA IN FRANCE.

REPORT BY CONSULAR AGENT MOREL, OF DUNKIRK.

As there appears at present a tendency to import from the western coast of South America, for use in the United States, the nitrate of soda, for which there is now such a large demand on the Continent, the following report may be found of some interest. The import into France of nitrate of soda dates back about ten years only, before which date the azote necessary to the growth of the products of the earth, was derived from the Peruvian guano, great quantities of which were imported, especially between the years 1875 and 1879. When, however, the principal and most valuable deposits in Chili and Peru became worked out, the quality of the guano then shipped depreciated so considerably that the proportion of azote contained therein was found insufficient. The farmers were compelled to abandon the guano, which, although it contained some phosphoric acid, was no longer good for the strong lands of the departments of the north—Pas-de-Calais and Aisne. The nitrate of soda then made its first appearance in France, and was found to contain as much as 15 to 16 per cent. of azote, being 5 to 6 per cent. more than the best guano. It was first used in the northern countries. For several years, however, it was very strongly objected to as giving to the land a momentary impulse, but impoverishing the soil and depriving it by degrees of all its fertilizing property, like certain drugs which leave the patient exhausted after giving him temporary relief. This prejudice was so strong that in the years 1881 and 1882 almost all the sugar refiners, when contracting for the beet-root crops, expressly prohibited, in their contracts with the farmers, the use of nitrate on the land prepared for the beet. Later on, however, they began to allow its use on the land before sowing time, still prohibiting it when the plant had sprung up. Now they not only authorize its use, but compel the farmers to sprinkle it on the beet crops. As soon as the nitrate was found to be of such great benefit a market sprang up in the north, where the beet is almost exclusively cultivated, and soon rapidly increased, as is shown in the following table of imports:

Year.	Quantity.	Year.	Quantity.
	Tons.		*Tons.*
1880	8,500	1886	73,000
1881	3,200	1887	89,000
1882	56,000	1888	144,000
1883	80,000	1889	162,000
1884	66,000	First six months of 1890	162,000
1885	73,000		

It may be added that about 98 per cent. of the nitrate brought into France is imported through the port of Dunkirk.

The season for consumption of nitrate in France is from February to the end of June. It is sprinkled on wheat and cereals sown in October and November—first in February when the frosts are over and again towards the middle of April. On the beet-roots it is also sown twice, viz, at the beginning of April and again at the end of May. It is little employed in the autumn, when rape-cake is prepared, as this more intimately mixes with the soil in winter time and gives slower results; while in Germany it is used conjointly with the cake at the time of the winter sowing. The nitrate of soda has given such satisfactory results that the farmers require very large quantities every year. Its use has also now spread among western, eastern, and even northern departments. It is more especially valuable for the sugar-beet, as it makes the plant heavier and richer; it also makes the ears of wheat and oats more plentiful, and is particularly favorable for the straw, the export of which, chiefly to the United Kingdom, is very considerable and increasing yearly. Beet roots require about 400 kilograms of nitrate per hectare; cereals, 300; and meadows, 200. When sown, it must be slightly imbedded in the soil by means of the harrow. It must not, however, be used quite alone, but should be used together with superphosphate and chloride of potassium. Some farmers and sugar refiners make it up themselves to suit their ground by mixing, in the right proportion, the four products which give the earth the four elements found to be indispensable, viz, nitrate of soda to give the azote, superphosphate to give the phosphate, chloride of potassium to give the potash, calx to give the calx. About 10 per cent of the nitrate imported is refined and used in the manufacture of a special phosphoric acid, used for making gunpowder. It must not contain over 1 per cent. of chloride of sodium, otherwise it would evolve—when worked with sulphuric acid to make phosphoric acid—such a quantity of chlorine that the workmen could not stand it. The price of refined nitrate is 50 centimes to 1 franc higher than that of nitrate; the latter has gradually fallen from 32 francs per 100 kilograms in 1882, to 21 francs in 1890, as, although the consumption is yearly increasing in Europe (160,000 tons in 1889–'90 over 1888–'89), it still remains inferior to the enormous production which was the consequence of such satisfactory results during the former years for the English and German capitalists. These low prices, however, have considerably accelerated the expansion of the nitrate trade in France, and it is to be expected that in the future prices will be sufficiently remunerative to the producers and so advantageous as to stimulate the consumers to increase its use.

BENJ. MOREL,
Consular Agent.

UNITED STATES CONSULAR AGENCY,
Dunkirk, September 9, 1890.

TAXATION IN FRANCE.

REPORT BY CONSUL WILLIAMS, OF ROUEN.

I transmit herewith a brief summary of the budget of Rouen for the year 1890. The taxes and expenses of government, general and departmental, having been made subjects of special reports, I consider the following estimate of revenue and expenses of some practical value, if for no other reason than showing the many topics upon which French legislators are expected to act. Many of these are not examples to follow so much as examples of what should be avoided.

CITY OF ROUEN.

The following is an estimate of the various receipts and expenses of the city of Rouen for the year 1890:

RECEIPTS.

	Francs.
Ordinary receipts:	
Revenue from taxes (additional centimes, 1)—hunting licenses, taxes for dogs, carriages, horses, etc	356,350.00
Communal taxes (rent of houses, land etc.)	91,572.20
Bonds, interest on donations, etc	28,883.54
Ordinary tax receipts—octroi (3,300,000 francs), slaughter-houses (128,000 francs), choice of places (248,000 francs), weights and measures, stalls and markets, for places upon docks and the river	3,878,000.00
City dues from the port	100,000.00
Right of way, carriage and tram-way licenses, gas companies (for privilege of pipe laying, etc.)	79,279.50
School receipts (grants from State and department, etc.)	54,665.15
Interest of funds placed in the banks, share of the city in the profits of gas and water companies and others	193,726.00
Total	4,782,476.39
Extraordinary receipts:	
Sales of land on account of straightening streets, surveys, and removal of houses therefrom, payments due, etc	60,083.00
Special tax for payment of loans	657,800.00
Additional octroi tax and tax of same on alcohol	568,000.00
Rents of property belonging to city	50,000.00
Interest of funds	120,075.60
Sundry receipts	18,496.60
Installment upon reserve funds	100,000.00
Grand total	6,356,931.59

EXPENSES.

Ordinary expenses:	
Expenses and salaries of municipal government—	
Office of the mayor	93,550.00
Expenses of police	311,115.00
Octroi	539,843.00
Slaughter-houses, etc	1,194,338.45

Ordinary expenses—Continued.	Francs.
Cost and maintenance of communal property, public lighting (246,300 francs), road expenses (402,321 francs), gardens and walks (79,440 francs), fountains and contributions, etc	874,500.60
Fire service	94,261.00
Public assistance—hospitals (470,000 francs), bureau of charities and dispensaries (230,000 francs), lunatic asylums (94,000 francs), foundlings, etc	917,023.50
Fine arts, museums, theaters, library, primary and advanced schools	793,471.32
Worship (rental allowed to ministers of various creeds)	8,400.00
Miscellaneous expenses	27,400.24
Pensions (assistance to different societies)	175,317.48
Fêtes and public ceremonies	25,000.00
Total	4,115,172.59
Extraordinary expenses:	
Due to the Crédit Foncier for a loan of 45,000,000 francs	2,106,184.96
Due to the school fund for a loan of 1,000,000 francs	40,000.00
Purchase of lands and buildings and share of city for public works, etc	95,574.04
Grand total	6,356,931.59

The principal of the direct taxes by the citizens of Rouen to the treasury is thus divided:

	Francs.
Real estate tax	798,670.00
Doors and windows	435,201.00
Personal property	424,639.00
Licenses	795,051.74
Total	2,453,561.74

From time to time a vote is taken and an additional centime is added for special purposes to these taxes, and upon the whole the addition of a centime (the hundredth part of a franc) gives 24,535.61 francs. In addition to the above taxes, the octroi collects on account of the treasury, in duties on beverages, about 950,000 francs.

VARIETY OF TAXES IN FRANCE.

The variety of subjects upon which legislation in France is called upon to act places her in the category of one of the most governed countries in the universe.

In the report of the prefect of the Seine-Inférieure for 1890 the question of stopping a train at certain points, requesting additional trains at others, the granting of assistance to gymnastic festivals, horse races, regattas, all sorts of gatherings, establishment of depots of breeding animals, aid for the propagation and extension of bee-hives and the feasibility of placing the same, movable wagons, and many other like topics were subjects of discussion and action. Upon competitive examination of young mares 7,000 francs were expended, and in tests of the same 4,300 francs.

Again, a very interesting subject was broached, that of the maintenance of abandoned children. It appears that formerly the prices fixed and paid to nurses were, in 1872, 18 francs per month for children from birth raised at the breast, 16 francs per month for children from birth brought up by bottle, 14 francs per month for children from one to three years, 13 francs per month for children from three to twelve years. In 1877 these were raised to 22.20 francs per month for children from one to twelve years. This was modified in 1882, as follows: Twenty-two francs per month for children raised at the breast, 20 francs per month for children raised by bottle, 15 francs per month for children from one to three years, 10 francs per month for children from three to twelve years. This price of 10 francs per month includes food, lodging, washing, mending, and furnishing bedding, and the child must be sent regularly to school at the age of six years. By the law of July 24, 1889, the General Government agrees to re-imburse one-fifth of the expense of assistance rendered to children.

The prefect insists that the remuneration of the nurses must be increased, and urges it on the plea that the children are forced to endure such privations, from the poverty of their surroundings, as produce disease and feebleness. He recommends that 14 francs per month be allowed for the maintenance of children from one to three years old, while the other rates remain as they are, except the raising of the price from 22 to 25 francs per month for children raised at the breast, of which there are 620; and there are 1,620 from three to thirteen years of age in this department.

There is, of course, an inspection of this service and assistants, all under the control of the minister of the interior. Telegraphs and telephones are controlled by the Government, and all places of worship are supported or assisted by the Government, and repairs, additions, and improvements authorized and controlled by the minister of worship.

CHAS. P. WILLIAMS,
Consul.

UNITED STATES CONSULATE,
Rouen, September 10, 1890.

THE GRANADA EARTHQUAKE.

REPORT BY CONSUL NEWELL, OF MANAGUA.

I have delayed addressing the Department regarding the earthquake in Granada, Nicaragua, because I desired to forward with my account the report of the expert of the Nicaragua Government on the cause of the seismic disturbance. This report, for some unknown reason, has not been made public, and, as it is doubtful when I can get it, I have determined not to await its publication.

Granada, the scene of the disturbance, is distant from Managua 27 miles, and is situated on the eastern side of Lake Nicaragua. Within a few miles of the city are numbers of volcanoes, the more prominent being Mombacho and Pilon.

The first shock was noticed at 10 o'clock Sunday morning, August 31. From this time until midnight of the same day there were twenty-two distinct shocks—some severe, the most slight. On Monday, September 1, at 6.30 a. m., the strongest shock was felt; its duration was six seconds. For an hour and a half after the shock on Monday the earth was in constant tremor. Twenty-six shocks from Monday, September 1, to Tuesday afternoon, September 2, were recorded.

On September 1 a panic seized the people, and women and children went crying and praying through the streets. Some women marched in procession bearing an image of the Savior, while others bore the statue of a saint, which, according to native belief, has power to quiet a disturbance of this character. The populace fled pell-mell to the Plaza and other open spaces. Some had the hardihood to take time to get household effects; the major part, however, sought a place of safety empty-handed. The business houses all discontinued business, which was a serious drawback, as the people were all shut off by this means from provisions, and thus ensued much distress. Many houses were looted by thieves. Some of the saloons were broken into by roughs and their contents carried off. The Government very wisely sent two hundred soldiers to Granada, and thus in the beginning stopped the reign of anarchy and chaos. So terror-stricken were the people that thousands fled to adjacent towns. The Government ordered special trains to enable those who desired to leave the city. Many availed themselves of the opportunity, so that now, even at this late date, Granada appears like a deserted village.

The earthquake still continues, and many prophecies are made as to the ultimate end of the trouble. Some agree with a noted French expert on earthquakes that the city will sink out of sight, or that a volcano will be thrown up in its midst. None of the volcanoes in the vicinity are active, so that it is exceedingly difficult to determine the cause. It may arise from atmospheric changes, as the season has been hotter and dryer than known here for years. Why this should locate the disturbance more in Granada than in any other place in Nicaragua, I know not.

The extent of the damage is not fully known. Many buildings have their walls badly cracked and many roofs are uncovered by the tiles running off.

This Government labors under a great disadvantage in not having the proper apparatus with which to make earthquake observations.

This, I might say, is the land of volcanoes, for within a radius of 300 miles there are twenty-five—one to every 12 miles. Much valuable information could be furnished science from this point were the proper instruments here.

WILLIAM NEWELL,
Consul.

UNITED STATES CONSULATE,
Managua, September 25, 1890.

MINE EXPLOSIONS IN FRANCE.

REPORT BY COMMERCIAL AGENT LOOMIS, OF ST. ETIENNE.

INTRODUCTORY REMARKS.

The Department of the Loire, of which St. Etienne is the capital, is one of the most prolific coal-producing regions on the continent of Europe. St. Etienne is circled with coal mines, and several of the deepest shafts of the region lie within the corporate limits of the city. Within the last ten years there has been a series of destructive explosions, which have wrought great damage to mining property, deprived many hundred miners of their lives, and thrown scores of destitute families on the community for support. The last great explosion in this city occurred on the 29th of July last, in what is called the Villebœuf Mine. One hundred and forty men lost their lives on that day, and the internal improvements and machinery were wrecked throughout the mine. Three days later another explosion occurred, whereby half a dozen men were killed, and about a year ago two hundred and eight perished in a single explosion.

These destructive and fatal explosions, occurring with such alarming frequency, have arrested the attention of the French Government, and an inquiry into the cause has been instituted.

There is such a similarity in character, in cause, and in consequences between the mine explosions in France and those which take place in the coal-mining regions of the United States that I have thought it well to condense into this report a little of the information concerning fire-damp and mining accidents which has been developed here, and, also, to refer to the manner of providing for the families of the unfortunate miners.

CARING FOR THE DESTITUTE.

The first step taken to provide for the comfort of the bereaved families is to bury the deceased miners with imposing and elaborate ceremonies. This accentuates the magnitude of the disaster and stimulates subscriptions for the benefit of the miners' families. The funerals are spectacular, and are attended with interest by most of the population blessed with powers of locomotion. A member or two of the French cabinet is sure to be present, accompanied by the prefect of the department, the mayor of the city, and a score of army officers. So the poor fellows who have led wretched lives, always working under-ground for about 97 cents a day, and who were finally blown into eternity with the suddenness of an electric shock, are buried with pomp and pageantry. At the funeral each one of the officials generally "rises for a few remarks," and the cabinet minister makes a speech, in which he announces that the Government will give several thousand francs to the families of the dead miners.

Immediately after the minister had made his speech at the funeral of the one hundred and forty miners, victims of the explosion of the 29th of July, an offensive socialist got up, waved a red flag, and commenced a violent revolutionary harangue. He denounced the Government of France, abused its officers, and insulted the minister, who, naturally, did not remain to listen to the fellow's talk. Later in the day, during the obsequies, there was another outbreak, a fight over red flags, and some police officers were assaulted and overpowered by the socialists.

When two hundred and eight miners were killed here by the explosion of July 3, 1889, $140,000 were raised for their families by subscription and distributed by a responsible committee in this way: To each widow $3 a month were paid, and to each child $2 a month until it reached the age of sixteen. In addition to this, the mining company had to make each widow a cash payment of $240 and an annuity equal to 12 cents a day for life or until the widow marries again. The children were paid 5 cents each day by the company until they reached the age of thirteen. These are the usual terms upon which mining corporations settle with the families of miners killed in the pits.

CAUSE OF MINE EXPLOSIONS.

The committee sent here by the French Government to investigate the subject of mine explosions, of course, finds that the primal cause is the igniting of fire-damp. The pit in which the explosion of July 29 occurred is 1,950 feet deep, and no one who was down its shaft at the time of the explosion survived to give information concerning the direct cause. So the committee learned from various sources that the potent promoters of fire-damp explosions are: (1) Want of proper ventilation in the galleries; (2) imprudence of the miners themselves; (3) want of proper investigation on the part of the controllers of the mine; and (4) negligence of the companies, who try to obtain the most profit with the least expense.

It has been generally agreed upon by the most competent authorities that until effective engines for sending a current of air through every gallery are invented explosions of fire-damp will occur in spite of every other precaution; for, unless the gas be mixed with two-thirds of air it is always a source of danger. Many years ago mining engineers devised a plan to permit the fire-damp (protocarbon of hydrogen) to mix freely with the air and set fire to the mixture in the absence of the workmen. For this purpose a man called a "penitent" in France, covered with wet clothes and provided with a mask having glass eyes, crawled into the gallery holding a long pole with a lighted torch at the end until the explosion occurred. This method was abandoned on account of the danger to the individual and the damage caused to the mine. Furthermore, the resultant gas remaining in the galleries exposed the men to asphyxiation. It was in order to avoid the inconvenience of this method that the mining lamp called "éternelle" was invented, consisting of burners placed in the roof of the suspected galleries, which burned the gas as soon as it was produced. The danger was thus diminished, since no considerable amount of the inflammable gas, called here "grison," could be formed. However, in the greater number of mines this method was also abandoned on account of the production of azote and carbonic acid, since, in order to facilitate the action of the lamps, the rapidity of the air currents had to be much diminished, otherwise the lights went out.

Several mine proprietors endeavored to profit by the properties which sponge platinum possesses of provoking the combustion of hydrogen. Thus, with one part of that metal and two parts of clay, balls were made which were fixed at the points where the gas was concentrated. But all these experiments were unsatisfactory and dangerous, only substituting in the place of a grave danger a series of other dangers, less sweeping, but equally harmful. Consequently, other methods were sought for, which may be briefly mentioned as follows: (1) Entire withdrawal of the gas out of the mine; (2) a different method of lighting, which would be sufficient for the miner without compromising his safety.

The idea of the withdrawal of the gas by means of powerful ventilators gave rise to many interesting experiments; but, contrary to what is believed at present, the engineers of the time came to the conclusion that this means would never lead to success, and that in lighting alone a solution of the difficult problem was to be found.

In order to replace the ordinary lamps in the most dangerous galleries, phosphorescent substances were used; but the light was too feeble to allow the men to work. A certain improvement, however, on this method was subsequently made. It being observed that the gas was not affected by a red heat, the discovery was used by lighting the pickers' corner of the gallery by means of a wheel of steel, which a man turned constantly against a particular kind of hard, flinty stone. The sparks given off furnished a much brighter light than that of the other systems, but they sometimes ignited the fire-damp. Nevertheless, not possessing a better way, the invention was well received.

Such was the state of things at the commencement of this century, until a series of formidable explosions, which every known method was unable to prevent, terrified the mining populations of England and obliged the savants and engineers of that country to recommence their studies of the question. The safety-lamps of Humphrey Davy and George Stephenson were then invented. These lamps are too well known to need comment, and are very generally used, especially that of the former, since 1816. However, in spite of the numerous improvements that these lamps have undergone in France, England, and Germany, they are far from guarantying absolute security.

The same opinion was expressed by the French minister of public works in the Chamber of Deputies when questioned on the recent accident at St. Etienne. He insisted that unless the mines were sufficiently ventilated explosions would constantly occur.

But I can not leave this subject of lighting without mentioning the electric lamp invented lately, and of which a member of the French Academy of

Science (Count de Gerson) gave the fullest details in a recent meeting and produced a specimen which greatly interested that assembly. This lamp is in use in some of the mines in the north of France and gives great satisfaction. It is very small and furnishes the light of a good candle for twelve hours. The cost of it is only 30 francs, or $6. By turning a button it can be lighted or extinguished at will. It is called the "Stella" lamp. The electricity is generated by a small battery of accumulators, and the current is maintained by 4 volts and 1 ampere. The accumulator is charged in about five hours. The secret of the invention is to be found in the leaden plates, or litteanodes, of the accumulators, which seem to be prepared by a particular process giving them great capacity and durability.

IMPRUDENCE OF THE MINERS.

There can be no doubt but that imprudence on the part of the workmen is frequently the primary cause of fire-damp explosions. In spite of the risk he runs—risk, unfortunately, as dangerous to his fellows as to himself—the miner will persist in opening his lamp or in using dynamite cartridges without previously assuring himself of the absence of the fatal gas. It is to be regretted that no effective means have yet been discovered of rendering impossible the opening of the safety-lamps. All those actually in use, even those closed by electricity, have been forced by the men, who are tempted to infringe the express order of the companies. For instance, the company requires a picker to furnish a given quantity of coal a day, this quantity being always equal to the extreme amount that could be asked of a good workman. If during work his lamp goes out, the miner, in order not to lose time by going to the lamp shop, which is frequently half an hour's distance from his point of work, opens his lamp himself, and, if fire-damp be present, an explosion naturally occurs. In the recent accident at Villebœuf a safety-lamp was found open and the glass absent. As regards the blasting by dynamite cartridges, which has frequently caused accidents of a limited extent, the carelessness in their use does not entirely fall on the miner, but rather on the governors or under-governors who deal out those cartridges contrary to orders to the men to be used at discretion. The possibility of the sparks from the pick of the miner setting fire to the gas is denied by many competent authorities.

NEGLIGENCE ON THE PART OF THE GOVERNORS.

To each mine there are two governors and seven or eight sub-governors—I am speaking of the mines of the Loire—who are responsible for the observance of the rules of the company by the miners. When they are conscientious, there is little to fear; but too often they relax their vigilance in order to save themselves trouble. For instance, it is strictly forbidden by law to entrust the miner with cartridges. When he wants a blast made, his duty is to go to one of the sub-governors, who accompanies him to the spot where the dynamite is to be placed, and, when careful examination proves that gas is not present, the sub-governor fires the explosive himself. Such is the law; but those men frequently infringe it, for the reasons already stated, and accidents are sometimes the result.

NEGLIGENCE OF COMPANIES.

It can not be said that the companies have nothing to reproach themselves with when such terrible explosions occur as those I have recently witnessed. The fault does not entirely rest with the miner, who so often pays with his life the penalty of his criminal carelessness. Companies who desire to have the greatest profit by the least expense are frequently guilty of the grossest negligence. Ventilation of the pits in the department of the Loire is far from being sufficient. Shafts should be sunk nearer each other, and powerful aspirating pumps to remove the foul air employed more generally. Companies, by often imposing oversevere tasks on their men, oblige them to use every subterfuge in order to meet the unjust exigencies of their employers.

This may be considered as the *ensemble* of the causes which directly or indirectly lead to the terrible disasters which so frequently visit this coal-mining region, and which are duplicated, both in kind and degree, in the United States.

FRANCIS B. LOOMIS,
Commercial Agent.

UNITED STATES COMMERCIAL AGENCY,
St. Etienne, September 15, 1890.

NEW ZEALAND.

REPORT BY CONSUL CONNOLLY, OF AUCKLAND.

The outlook in New Zealand continues bright and hopeful. The prospects of increasing and continued prosperity are more encouraging than for a number of years past. The colony has settled down to a slow but certain pace in the race for population and wealth. Its resources are being developed upon a more permanent and substantial basis, as may be seen from a glance at the large increase of exports over imports during the last year. But, while the productive capabilities of the colony are expanding and the exports are largely in excess of the imports, there is still some discontent among the farmers and producers generally. They observe that their condition does not seem to improve in proportion to the increased prosperity which has, in various ways, manifested itself throughout the colony. There is no doubt, if the amount derived from the surplus products of New Zealand came back and were spent in developing and improving the colony, that New Zealand, taking into consideration its population and size, would rank among the wealthiest little communities in the world, perhaps. This, however, can not be expected while the necessity exists of paying interest upon the public and private indebtedness of the colony, which, in round numbers, amounts to $452,846,370, most of which is held in foreign countries. It is estimated that only about $10,000,000 of the above sum is held in the colony. Deducting this $10,000,000 from the total indebtedness, we have the enormous sum of $442,846,370 held abroad, which necessitates the sending out of the country every year to pay the interest on this huge sum $23,066,025. There is no reasonable explanation that can be given as to why the producers do not experience that degree of prosperity which the excess of exports over imports would indicate, except that it requires the whole of the surplus products of the country to meet the accumulating obligations of the people in the shape of interest on their private and public indebtedness. Were it not for the wonderful elasticity of the resources of the colony, it would be impossible for the handful of people who comprise the population of New Zealand to be able to maintain the credit of the country.

LAND-TAX.

There is considerable agitation in this colony at present as to the merits and demerits of a single land-tax. Those who are in favor of the tax assert that it is a panacea for the ills the colony is laboring under at present; that its adoption will insure the permanent prosperity of the country; that it will enable the Government to dispense with the personal property tax, against which there is much grievous complaint. But, as the farmer, upon whom the burden must ultimately fall, has to contend with the many trials and vicissitudes which beset the farmers of other lands, it is difficult to thoroughly understand how he is supposed to survive and prosper under the additional taxation which must naturally follow the adoption of the single land-tax system

The lot of the New Zealand farmer, although his land will and does produce abundantly almost any thing that may be sown in it, is not altogether an enviable one. With, in many instances, impassable public highways in winter time, with unreasonably high railway charges at all seasons of the year, and with 16,000 miles of ocean between him and his natural market, together with the difficulties already referred to, his position, to the uninformed, casual observer, is any thing but pleasant to contemplate. And yet, notwithstanding the many disadvantages he must of necessity labor under, owing to his isolated position, being, as he is, so far removed from the centers of population and markets of the world, if treated fairly and with that consideration the importance of his calling demands, he would be as happy and prosperous as any of his kind.

The "single tax" is a theory without a precedent; and, although the colonists are, as a rule, ever ready to adopt progressive measures calculated to advance the interests of the common people, at the same time they are slow to introduce radical changes affecting long-existing and well-established principles. It is therefore safe to assume that for many years to come the single tax advocates will remain in the minority—at least until the practicability of their scheme has been demonstrated in some country other than New Zealand.

THE PERSONAL PROPERTY TAX.

This tax was introduced as a last resort. Not until it became absolutely necessary to raise additional revenue was this tax imposed, all other available sources from which a revenue might be derived being taxed to their utmost capacity. The personal property tax is objectionable at all times and in all countries, and should be dispensed with in every instance whenever it is practicable to do so. But in this instance it seems to be an indispensable necessity, as so much money is required annually for Government purposes and there is no other means apparent by which the necessary revenue may be obtained. It is denounced on every hand as being detrimental to the development and welfare of the colony, but so far no one has been able to present a feasible scheme to take its place which would be acceptable to those who are most interested.

There is a tax exemption of $2,433, and, owing to this exemption, the burdens of taxation fall heavily upon the few whose wealth exceeds that amount.

Those who pay taxes less than $12 per annum number 13,055, while 506 pay over $405.53. The total net value of property belonging to non-taxpayers covered by exemptions is $46,748,770, while, if exemptions were abolished, the total increased tax on the existing accounts would be equal to $484,305. It is asserted that in many instances this privilege is abused, as not infrequently is it the case where a man owns property valued at more than $2,433 he makes his wife a deed of the remainder, provided it does not exceed $2,433, thus avoiding his fair proportion of taxation, while the burdens of his more honest but less fortunate neighbors perceptibly increase.

The total value of real property in the colony is as follows: Crown lands, $61,028,515; native lands, $28,951,830; education, church, municipal, and other reserves, $44,667,075. The taxable real estate of persons and companies is $229,054,365; non-taxable real estate (including the $2,433 exemption), $191,986,785. The difference between the taxable realty of the colony and that which is exempt is only $37,067,580.

The value of personal property is equal to $477,651,050. This, like the real estate, is exempt from taxation to the value of $2,433. Hence it is that there is so much complaint among those who have to pay most of the taxes. The opinion is becoming general among the people that there should be no exemption, that there should be no exception made in matters of taxation. All should pay alike; the man with 100,000 acres of land should contribute his proportion of the taxes equally with the man who only owns a few acres. Every man who enjoys the freedom and protection of the Government should contribute towards the maintenance of that Government in accordance with his means. Thus, by an equal distribution of the taxes in proportion to wealth, capital would be relieved of much of the useless annoyance which harasses it to-day and labor would be steadily and more profitably employed;

it would stimulate enterprise and encourage the development of all kinds of industries throughout the land.

One noticeable feature of this tax agitation is that many of those who pay no taxes whatever are loudest in their denunciation of the "iniquitous" property tax and equally strong in their advocacy of the single tax proposition; while, on the other hand, those who do pay, and must continue to pay, have the least to say. They quietly acquiesce in the necessity of the situation, knowing full well that there is no immediate remedy, and that no amount of protestations can or will, for the present, afford them any relief.

POSITION OF THE COLONY.

There is not the slightest doubt as to the great future before New Zealand, provided ordinary care is observed in the management of her affairs. Her position as the most productive colony in Australasia is firmly established, as a comparison of her exports and imports with those of the other colonies will demonstrate. The united import and export trade of the Australasian colonies and New Zealand for the year 1889 amounted to $467,623,085.

The following table will show for each of the seven colonies the varying relations that the imports and exports bear to each other:

Colony.	Population.	Imports.	Exports.
Victoria	1,090,869	$120,947,110	$62,432,010
New South Wales	1,085,740	112,731,165	116,342,890
Queensland	387,463	29,810,530	34,513,685
South Australia	318,308	34,022,255	36,296,825
West Australia	42,137	3,931,250	3,401,720
Tasmania	146,149	8,055,175	7,335,820
Total for Australia		188,550,375	197,890,900
New Zealand	607,380	34,485,485	46,696,325
Grand total		223,035,860	244,587,225

It will be seen from the above table that New Zealand, in proportion to population, is the greatest wealth-producing colony of the Australasian group.

WHALE FISHING.

But, whilst nearly all kinds of industries are progressing favorably, yet there are a few which have perceptibly deteriorated for the last ten years and in some instances have been entirely lost. Amongst the latter may be mentioned the whale fisheries. In 1880, 3,585 pounds of whalebone had been exported; in 1884 it increased to 20,412 pounds, whilst in 1889 the exports amounted to only 1,792 pounds. The trade in whale oil, both sperm and black, has almost entirely disappeared. The quantity of both kinds of oil exported in 1880 amounted to 27,830 gallons, but in 1889 it had dwindled down to 134 gallons of black oil only.

GOLD AND SILVER.

There has been a great falling off in the export of gold. In 1880 the returns were 303,215 ounces; in 1889, 197,492 ounces; showing a decrease of 105,723 ounces. Silver has increased but slightly, viz, in 1880, 20,005 ounces; in 1889, 24,105 ounces; an advance of 4,100 ounces.

NEW ZEALAND FISHERIES.

This industry is being rapidly developed, and affords remunerative employment to many people, although it may be said the industry is but in its infancy as yet. A glance at the following figures will be sufficient to show the future possibilities of this most important item if properly developed: In 1880 the export was only 17½ cwts., whilst in 1889 it had increased to 10,103 cwts.; and during the present year (1890) it is expected that at least double the quantity will be exported, owing to the fact that large quantities are being frozen in the great meat-freezing works of the colony and shipped to Melbourne and Sydney.

THE RABBIT PEST.

The destruction of this pest goes steadily on, although there is scarcely any perceptible diminution in the number; yet the returns show the progress made in this respect, as seen by the export of skins. During the past ten years the total number of skins exported amounted to, in round numbers, nearly 100,000,000, increasing from about 7,000,000 in 1880 to 11,342,778 in 1889. The value of last year's sale of rabbit-skins outside the colony amounted to $480,195.

FROZEN MEAT.

This is one of the most important industries in the colony. Last year the quantity of frozen beef exported was 68,296 cwts., valued at $407,605; frozen mutton, 547,015 cwts., representing 990,026 carcasses of the value of $3,207,810; frozen lamb, 41,243 cwts. (equal to 118,794 carcasses), for which was received the sum of $299,825. The frozen meat trade has increased from $76,220 in 1882 to $3,284,110 in 1889.

Those engaged in the frozen meat carrying trade between England and New Zealand are alive to the importance of this branch of trade, as they are increasing the capacity of their vessels. All the new vessels being built for this particular trade have a carrying capacity equal to 50,000 carcasses each. The demand for New Zealand meat in England is steadily improving. Last year's increase over 1888 amounted to $522,620.

WOOL.

I have endeavored to procure some reliable information in regard to the cost of wool-growing in New Zealand, which, I hope, may prove interesting to those engaged in similar occupations in the United States.

Some months ago I received a communication from a gentleman in Philadelphia requesting information pertaining to the cost of sheep raising and wool-growing. I accordingly submit the following as the result of my labors in answer to the questions propounded by him:

The average cost per sheep a year to the breeders (all expenses) is about 60 cents. The average proportion of sheep to attendants is one attendant to every 5,000 sheep. The average wages paid to attendants is $4.86 per week and found. The average weight of a fleece is: Merinos, 5 pounds; cross-breds, 8 pounds. The average price that the breeders receive per pound of wool is from 10 to 23 cents in the grease—average, 17 cents per pound. The average size of a flock on stations is from 30,000 to 80,000, and in paddock farming (inclosed in fields) 200 to 3,000 sheep. Owing to the mildness of the climate, shelter beyond that which is furnished by hedges is not necessary. The character of their food is principally grass, except where sheep are being prepared for freezing and export to England, when they are fed on grass and turnips. The proportion of sheep and lambs lost annually from exposure is about 5 per cent. It is found that sheep imported into New Zealand improve very much, both in constitution and in quality. It is generally attributed to the uniform mildness of the climate. No other satisfactory answer to this question is obtainable, although I have made numerous inquiries amongst those who are familiar with the subject, than that the land, grass, and climate are peculiarly adapted to sheep raising.

The number of sheep exported last year with and without wool amounted to 1,964,281, valued at $553,040. Thirty-seven thousand eight hundred and twenty-six of the above number were shipped to the west coast of America (San Francisco) of the value of $5,055.

The total value of wool exported from 1880 to 1889, inclusive, was $207,622,565. The wool export for 1880 was 66,860,150 pounds, valued at $17,473,450, whilst the returns for 1889 show the wool shipments to be 102,227,354 pounds ($28,037,005), an increase during the ten years of $10,563,550.

I still entertain the opinion expressed in my report to the Department of January 27, 1890, viz, that American wool buyers could buy in this market and ship direct to New York or Boston much cheaper than they could buy in London. It is reasonable to presume that the London or middle-man's commission, together with the cost of transshipment from London to New York, would at least be saved. I am forced to this conclusion from the fact that many of the continental buyers find their way to these colonies during the wool season. If wool buyers on the Continent find it profitable to purchase their wool from first hands, then would not American manufacturers find it equally advantageous to pursue a similar course? The experiment seems worthy the consideration of those engaged in woolen manufactures.

AREA OF FLAX LAND IN NEW ZEALAND.

Since New Zealand flax has, during the past year, become an article of commercial importance, I deemed it necessary to furnish some information as to the area of flax land in the colony. To this end I communicated with the general Crown lands office, at Wellington, and received from H. I. H. Elliott, esq., under-secretary, the following tabulated estimate of the number of acres upon which *Phormium tenax* grows in the several under-mentioned districts:

District.	Crown.	Held by private people.	Native.	Total.
	Acres.	*Acres.*	*Acres.*	
Auckland	78,000	62,000	142,000	282,000
Taranaki	....	3,400	4,400	7,800
Wellington	....	66,000	....	66,000
Nelson	2,050	1,850	80	3,980
Marlborough	2,300	6,100	250	8,650
Canterbury	5,813	10,790	50	16,653
Westland	27,022	1,560	282	28,869
Otago	2,500	26,000	200	28,700
Southland	2,000	1,750	....	3,750
Total	119,685	179,450	147,262	446,402

The total quantity of New Zealand flax fiber exported last year was 17,084 tons, valued at $1,805,910. Of this 1,911 tons were shipped to New York, valued at $200,185 and 990 tons to San Francisco, which brought $110,465. Thus the total export of flax to the United States for 1889 was 2,901 tons of the total value of $310,650.

J. D. CONNOLLY,
Consul.

UNITED STATES CONSULATE,
Auckland, June 30, 1890.

AMERICAN-NEW ZEALAND TRADE.

REPORT BY CONSUL CONNOLLY, OF AUCKLAND.

IMPORTS AND EXPORTS.

The total value of imports from the United States during 1889 amounted to $1,712,180, an increase over the preceding year of $96,835. The value of the exports to the United States during the same period was $1,706,860, thus showing the balance of trade to be $5,320 in our favor at the close of last year.

As the Australasian colonies are growing in wealth and population, and, in consequence, their commercial importance correspondingly increasing, it might not be uninteresting to know the value of our trade with New Zealand for the last ten years, viz, from 1880 to 1889, inclusive. From figures just received from the Colonial Government, I find the exports for the decennial period above referred to to be: Imports from the United States, $17,680,255; exports to America, $16,339,060; thus leaving a balance to our credit for ten years' trade of $1,341,195. Considering that there has been no special effort made on our part to cultivate those close commercial relations which are becoming so necessary to the creation of new markets for the surplus manufactures of the United States, the above figures can not be considered unfavorable.

I believe I am justified in saying that if an earnest effort was made towards extending our trade with these colonies our present trade would more than double annually. This, however, can only be accomplished by more frequent communication.

THE SAN FRANCISCO MAIL SERVICE.

New Zealanders keenly appreciate the importance of creating friendly intercourse with the people of the United States, and they have demonstrated this by subsidizing a line of American steamers to run between San Francisco and the colonies. For years this colony has borne the brunt of the expense of maintaining direct communication with the United States without material assistance from any other source. New Zealand has at last become wearied of bearing the burden which a continuance of the service single-handed must necessarily entail whilst others, practically speaking, reap the benefit. It has therefore been determined to discontinue the subsidy to the San Francisco service, but, before doing so, the Government of New South Wales was invited to join New Zealand in defraying a portion of the expense. Sir Harry Atkinson, premier of New Zealand, is in receipt of a communication from the Government of New South Wales positively refusing to contribute any thing towards the present mail service. This necessarily compels the abandonment of the San Francisco mail route by the New Zealand Government. This is, indeed, a great misfortune, as the line can not live without outside assistance; and, if it is withdrawn altogether, it will work a great hardship to many American interests in these colonies. The withdrawal of the Oceanic Company's steamers would be a death-blow to American progress in the South Pacific. It would tend to alienate the friendly desire to trade with the United States that at present happily exists. It would require years of determined and unremitting effort to re-establish the friendship and prestige that we at present enjoy in these seas.

I have called attention, in another report, to the combined trade of the Australasian colonies. I did so in the hope that its magnitude and importance might attract attention and create a favorable impression in the minds of those who are interested in the welfare and expansion of our commercial interests, thereby stimulating a desire to secure a larger proportion of the trade of these prosperous and growing communities than, through apathy and indifference, falls to our lot at present.

If we would open up new markets for ourselves and establish our position on the high seas, a more liberal policy towards our shipping interests must be pursued. By no other means can we regain our lost ground in this respect. I can not, therefore, too strongly urge the necessity of at least giving pecuniary assistance to old established lines whenever the importance of such lines demand it, and it is quite evident assistance is necessary.

IRON VS. WOODEN SHIPS.

I have noticed a preference is given in shipping circles to iron vessels, whenever it is practicable to do so, as against wooden ones. All the American sailing vessels coming to this port are constructed of wood, and, as a result, whenever iron and wooden vessels are loading for the same port, freight and other considerations being equal, in nearly every instance preference is given to the iron vessel. This would seem to indicate the necessity of building iron vessels in the future. Nearly all the British vessels leaving here for American ports are built of iron, and, in consequence, are more popular than our American wooden vessels.

IMPORTS FROM THE UNITED STATES.

Table showing the value and quantity of imports from the United States for the year 1889.

Articles.	Quantity.	Value.	Duty.
Agricultural implements		$3,360	Free.
Animals, living ... number	50	685	Do.
Apparel and slops		6,870	25 per cent. ad valorem.
Arms:			
Sporting ... number	52	365	15 per cent. ad valorem.
Pistols ... do	3	105	Do.
Caps, percussion ... do	30,000	55	24 cents per 1,000.
Cartridges ... do	174,250	675	15 per cent. ad valorem.
Cartridge cases, unwrapped ... cases	3,000	15	Do.
Fuse ... cwts	5	100	Free.
Bacon and hams ... pounds	115	20	4 cents per pound.
Bags and sacks ... dozens	28	45	Free.
Beer ... gallons	552	645	36 cents per gallon.
Biscuits ... cwts	5	100	Free.
Blacking		1,420	20 per cent. ad valorem.
Books (printed)		24,200	Free.
Boots ... dozen pairs	18	595	20 per cent. ad valorem.
Do ... do	274	13,440	Free.
Borax ... cwts	2	20	Do.
Brass ... do	1	35	Do.
Brass ware		20	Do.
Bricks, fire ... number	244	25	20 per cent. ad valorem.
Do ... do	48	25	Free.
Brush ware:			
Brooms ... do	1,795	2,385	20 per cent. ad valorem.
Material		5,055	Free.
Buckets and tubs (wood) ... dozens	132	575	20 per cent. ad valorem.
Canvas		4,365	Free.
Cards, playing ... dozen packs	591	1,160	12 cents per pack.
Carriages and carts ... number	28	7,015	20 per cent. ad valorem.
Carts, drays, etc ... do	67	2,075	Do.
Carriages:			
Baby ... do	120	1,100	Do.
Bicycles and tricycles ... do	8	865	Do.
Materials for		630	Do.
Do		15,630	Free.
Casks, empty ... number	70	250	Do.
Chains ... cwts	1	5	Do.
China		75	20 per cent. ad valorem.
Clocks ... number	7,358	10,890	Do.
Coffee ... pounds	11,235	2,625	12 cents per pound.
Confectionery ... do	2,977	475	6 cents per pound.

Table showing the value and quantity of imports from the United States, etc.—Continued.

Articles.	Quantity.	Value.	Duty.
Cordage....tons	3	$1,670	20 per cent. ad valorem.
Cotton		2,905	Free.
Piece-goods		210	Do.
Unenumerated		3,470	10 per cent. ad valorem.
Cutlery		720	20 per cent. ad valorem.
Drapery		1,055	Do.
Druggists' wares		7,305	15 per cent. ad valorem.
Do		1,745	Free.
Drugs and chemicals		5,590	15 per cent. ad valorem.
Sheep dip		160	Free.
Dyes		55	Do.
Earthenware		95	20 per cent. ad valorem.
Electro-plate ware		2,365	Do.
Engine packing....cwts	7	200	Free.
Fancy goods		6,420	20 per cent. ad valorem.
Felt sheathing		290	Free.
Fire hose		75	Do.
Fish....cwts	87	930	$2.50 per cwt.
Bottled and preserved....pounds	319,604	43,810	4 cents per pound.
Flour		30	24 cents per cental.
Fruits:			
Bottled and preserved....dozens	7,679	13,455	20 per cent. ad valorem.
Dried (unenumerated)....pounds	72,409	6,290	4 cents per pound.
Raisins....do	24,688	3,640	Do.
Fresh....do	64,904	2,640	1 cent per pound.
Furniture		27,375	25 per cent. ad valorem.
Unenumerated		5	Free.
Glass bottles....dozens	4,602	1,425	Do.
Glassware		4,490	15 per cent. ad valorem.
Glue....pounds	181	90	3 cents per pound.
Grain:			
Beans and peas....centals	65	125	18 cents. per cental.
Wheat....do	37	145	Do.
Grease....cwts	177	650	Free.
Grindery		7,580	20 per cent. ad valorem.
Haberdashery		40	Do.
Do		45	Free.
Hardware and iron-mongery		64,465	15 and 20 per cent. ad valorem.
Axes and hatchets		32,765	Free.
Spades, shovels, and forks		24,370	Do.
Unenumerated		2,160	Do.
Hats, felt and other....dozens	15	75	20 per cent. ad valorem.
Hops....pounds	12,063	2,920	12 cents per pound.
India rubber goods		460	20 per cent. ad valorem.
Ink:			
Printing....pounds	4,435	970	Free.
Writing		30	20 per cent. ad valorem.
Instruments:			
Musical—			
Organs....number	200	10,125	20 per cent. ad valorem.
Piano-fortes....do	4	980	Do.
Materials for		10	15 and 20 per cent. ad valorem.
Unenumerated		140	15 per cent. ad valorem.
Scientific		505	Free.
Surgical		1,515	Do.
Iron:			
Bars....tons	3	55	Do.
Bolts and nuts....cwts	1	5	20 per cent. ad valorem.

Table showing the value and quantity of imports from the United States, etc.—Continued.

Articles.	Quantity.	Value.	Duty.
Iron—Continued.			
Galvanized, corrugated ... cwts	168	$1,245	48 cents per cwt.
Manufactured	...	70	25 per cent. ad valorem.
Pipes—			
Cast ... tons	2	85	5 per cent. ad valorem.
Wrought ... do	1	55	Do.
Staples ... cwts	4	15	20 per cent. ad valorem.
Tanks ... number	5	60	$2.50 each.
Unenumerated ... tons	4	865	Free.
Wire—			
Barbed ... cwts	10,687	44,425	24 cents per cwt.
Fencing ... do	9	65	48 cents per cwt.
Unenumerated ... tons	3	520	Free.
Jams and jellies ... pounds	54	10	4 cents per pound.
Jewelry	...	430	20 per cent. ad valorem.
Lamps	...	11,530	15 per cent. ad valorem.
Leather ... pounds	64,320	28,895	12 cents per pound.
Do ... do	4,715	2,570	Free.
Manufactured	...	395	20 per cent. ad valorem.
Machinery:			
Agricultural	...	222,040	Free.
Electric	...	930	Do.
Flour-mill	...	40	Do.
Mining	...	45,450	Do.
Saw-mill	...	95	20 per cent. ad valorem.
Sewing-machines ... number	2,721	63,785	Free.
Parts of	...	2,530	Do.
Unenumerated	...	5,610	20 per cent. ad valorem.
Marble	...	920	Do.
Unwrought	...	360	5 per cent. ad valorem.
Meal:			
Maizena and corn ... pounds	107,440	8,260	Half a cent per pound.
Oat ... centals	7	50	24 cents per cental.
Unenumerated ... do	147	830	Do.
Medicine	...	26,230	25 per cent. ad valorem.
Milk ... pounds	96	10	20 per cent. ad valorem.
Nails ... cwts	1,604	26,555	48 cents per cwt.
Oars ... number	1,634	1,245	Free.
Oil:			
Castor ... gallons	8	5	12 cents per gallon.
Codliver (crude) ... do	4,558	2,200	Free.
Kerosene ... do	1,291,366	266,430	12 cents per gallon.
Linseed ... do	1,262	1,035	Do.
Olive ... do	160	155	Do.
Palm ... do	2,210	945	Free.
Petroleum ... do	6,805	1,710	12 cents per gallon.
Salad	...	1,570	15 per cent. ad valorem.
Whale—			
Black ... gallons	1,195	565	Free.
Sperm ... do	160	125	Do.
Unenumerated—			
In bulk ... do	25,043	13,985	12 cents per gallon.
Bottled ... dozen pints	126	259	15 per cent. ad valorem.
Oilmen's stores	...	4,815	15 and 20 per cent. ad valorem.
Paintings and engravings	...	840	15 per cent. ad valorem.
Paints and colors ... cwts	45	375	48 cents per cwt.
Mixed for use ... do	7	50	96 cents per cwt.
Unenumerated ... do	93	1,155	Free.

Table showing the value and quantity of imports from the United States, etc.—**Continued.**

Articles.	Quantity.	Value.	Duty.
Paper:			
Bags … cwts	298	$4,270	25 per cent. ad valorem.
Printing … do	123	1,425	Free.
Wrapping … do	14	160	$1.20 per cwt.
Peas, split … do	34	90	48 cents per cwt.
Perfumery		1,755	25 per cent. ad valorem.
Photographic goods		30	Free.
Pipes, wooden … gross	6	30	15 per cent. ad valorem.
Pitch and tar … cwts	68	80	Free.
Plants, flower		325	Do.
Plaster of Paris … barrels	980	2,530	Do.
Plated ware		1,740	20 per cent. ad valorem.
Portmanteaus		360	Do.
Printing material		790	Free.
Provisions		525	20 per cent. ad valorem.
Pumps … number	975	3,940	Do.
Quicksilver … pounds	9,400	5,650	Free.
Railway carriages		430	Do.
Resin … cwts	11,040	10,805	Do.
Rugs (opossum, etc.) … number	10	160	20 per cent. ad valorem.
Saddlery and harness		4,150	15 and 20 per cent. ad valorem.
Saddlery and iron-mongery		495	Free.
Salt … tons	8	90	Do.
Sausage skins … pounds	84,887	19,020	20 per cent. ad valorem.
Seeds … bushels	6,106	44,405	Free.
Unenumerated		560	Do.
Ship-chandlery		1,300	Do.
Silk piece-goods		385	25 per cent. ad valorem.
Slates, roofing … number	105,571	3,740	Free.
Soap:			
Common … cwts	32	165	$1.20 per cwt.
Fancy … pounds	1,125	140	25 per cent. ad valorem.
Specimens, natural history		55	Free.
Spirits:			
Perfumed … gallons	140	2,870	$5.10 per gallon.
Whisky … do	40	120	$3.89 per gallon.
Unenumerated … do	165	380	Do.
Starch … pounds	4,240	205	4 cents per pound.
Stationery		3,750	15, 20, and 25 per cent. ad valorem.
Do		2,915	Free.
Steel … tons	2	80	Do.
Stone (grindstones) … number	46	60	Do.
Sugar:			
Refined … pounds	6,864	435	1 cent per pound.
Glucose … do	27,121	785	2 cents per pound.
Molasses and treacle … do	2,240	75	1 cent per pound.
Tarpaulins and tents		1,500	15 per cent. ad valorem.
Telegraph material		820	Free.
Textile piece-goods (not silk or cotton)		50	20 per cent. ad valorem.
Timber:			
Laths … number	1,635	60	48 cents per 1,000.
Sawn—			
Dressed … feet	71,363	4,080	96 cents per 1,000 feet.
Undressed … do	23,980	2,310	48 cents per 1,000 feet.
Shafts, spokes, felloes, etc … number	82,670	12,160	Free.
Shafts, buggy rims, etc		2,120	Do.
Unenumerated		6,460	Do.
Staves … number	230	640	Do.
Tinware		480	25 per cent. ad valorem.
Tinsmiths' furnishings		430	

Table showing the value and quantity of imports from the United States, etc.—Continued.

Articles.	Quantity.	Value.	Duty.
Tobacco:			
Manufactured....pounds...	676,528	$38,646	84 cents per pound.
Cigars....do......	879	2,185	$1.68 per pound.
Cigarettes....do......	22,753	38,835	Do.
Toys....	....	135	20 per cent. ad valorem.
Turpentine....gallons...	37,681	24,925	
Twine....	....	200	Do.
For reapers and binders....cwts...	253	3,555	15 per cent. ad valorem.
Umbrellas, materials for....	....	350	20 per cent. ad valorem.
Varnish....gallons...	1,057	1,540	36 cents per gallon.
Vegetables:			
Fresh....pounds...	209,769	2,710	20 per cent. ad valorem.
Preserved....do......	9,725	785	Do.
Watches....number...	3,943	9,385	Do.
Watch-makers' materials....	....	260	Free.
Wax, paraffine, etc....pounds...	20,921	2,025	3 cents per pound.
Whiting and chalk....cwts...	23	210	24 cents per pound.
Wine:			
In bottles....gallons...	6	20	$1.44 per gallon.
In wood....do......	188	160	Do.
Sparkling....do......	2	20	$2.10 per gallon.
Wooden ware....	....	33,140	15 per cent. ad valorem.
Do....	....	4,510	Free.
Woolen piece-goods....	....	100	20 per cent. ad valorem.
Zinc manufactures....	....	175	Free.

JOHN D. CONNOLLY,
Consul.

UNITED STATES CONSULATE,
Auckland, June 30, 1890.

COMMERCE OF VERA CRUZ.

REPORT BY CONSUL HOFF.

TRADE AND NAVIGATION.

There has been a great increase in the commercial business of this port. For instance, in 1888 there were 217 foreign vessels of all classes to this port of 285,361 tons, whilst in the year 1889 there were 289 of all classes, with an aggregate of 400,931 tons, making an increase of more than 40 per cent. The exports to the United States in the four calendar years last past were as follows, value being given in gold:

1886....	$2,406,242.79
1887....	3,079,178.05
1888....	3,235,784.87
1889....	4,227,399.17

The above shows a real gain that seems to be a healthy one. Further, of the 289 ships of all flags that came to this port 96 American, 42 British, and 10 Spanish went directly to the United States, making an aggregate of 182,427 tons—nearly one-half of the whole foreign commerce of Vera Cruz.

HARBOR IMPROVEMENTS.

The harbor improvement of Vera Cruz is going ahead rapidly, although it is a large job, being about ninety-three hundreths of a mile long and 110 feet wide, and some parts of it very deep. They have already dumped 150,000 tons of stone into the sea for the mole, and about 18,000 tons more are ready to dump in when the weather will permit. When completed it will be one of the best jobs that was ever done in Mexico. It will then give her a good port and safe harbor for all kinds and sizes of vessels. The work is to be finished in 1892.

INTEROCEANIC RAILWAY.

The Interoceanic Railroad (narrow gauge), from here to Mexico and from there to Acapulco, on the Pacific, is progressing rapidly. It is about 785 kilometers long, of which 572 are already built; and by the 5th of May next it is expected to be completed to Jalapa, from Mexico, and in one year it will be completed to Vera Cruz. When completed it will be a great acquisition to Vera Cruz, as it opens a country that is capable of great production when put under proper cultivation.

JOSEPH D. HOFF,
Consul.

UNITED STATES CONSULATE,
Vera Cruz, Mexico, 1890.

NEW ZEALAND ABSENTEE LAND-HOLDERS.

REPORT BY CONSUL CONNOLLY, OF AUCKLAND.

One of the gravest questions agitating the public mind in this colony at present is that of absentee land-holders. The abolition of this most pernicious system is of supreme importance to the development and welfare of the colony.

It is lamentable to contemplate a young country like this—so full of promise, so capable of producing every comfort man might require—lying idle and waste. Large areas of lands are held by absentees, men who care but little about New Zealand or its inhabitants so long as their yearly income is assured which enables them to live in luxury and plenty abroad. There are few countries, perhaps (Ireland excepted), more sorely afflicted in this respect than New Zealand; but of late the people are awakening to the magnitude of this ever-increasing evil. The flower of the land is held, to a great extent, by people who live outside the colony and never spend a penny in improving their estates if it be possible to avoid it. Thus, where hundreds of happy homes and firesides might dot the hill-sides and fertile valleys of New Zealand, there is nothing to welcome the inquiring eye of the stranger but a dreary waste of rabbit-infested, unimproved land, together with a few indescribable old houses, which at times afford inadequate shelter to the few men who are in charge of the stations. And yet all these conditions exist whilst the lordly owner of these broad acres lives in voluptuous comfort in other lands. To this, as much as to any other cause, perhaps, may be attributed the period of stagnation and depression which has swept over the country for some years past. Until such time as remedial legislation is had which shall correct existing abuses in the land system of the colony, there can be no permanent improvement in its condition. Whilst the land laws are so favorable to grasping such vast areas of the choicest lands in New Zealand and withholding them from actual settlers, so long must the progress of the colony be embarrassed and seriously affected thereby.

A return recently published by the Government, showing the number of absentees and the number of acres of land held by each, together with the revenue derived by each from his vast holdings, has opened the eyes of the public to the enormous acreage held outside the colony. Should public sentiment continue to grow in favor of cutting up those large estates, Parliament must certainly pass such laws as will effect this much-needed change. The murmur of discontent that has gone up all over the land against absentee land-holders points unmistakably to an early and satisfactory solution of this vexed question, which has so long been the bane of New Zealand, as it has been in all other countries where it ever existed. Then will commence a new era of enduring prosperity for New Zealand such as it has never before experienced. Men will occupy and develop the lands, thereby reducing the burdens of taxation upon all. Where nothing but rabbit and fern abound to-day will be transformed into a smiling garden.

JNO. D. CONNOLLY,
Consul.

UNITED STATES CONSULATE,
Auckland, June 30, 1890.

THE HANNAFORD ELECTRIC LIGHT-HOUSE.

REPORT BY CONSUL CONNOLLY, OF AUCKLAND.

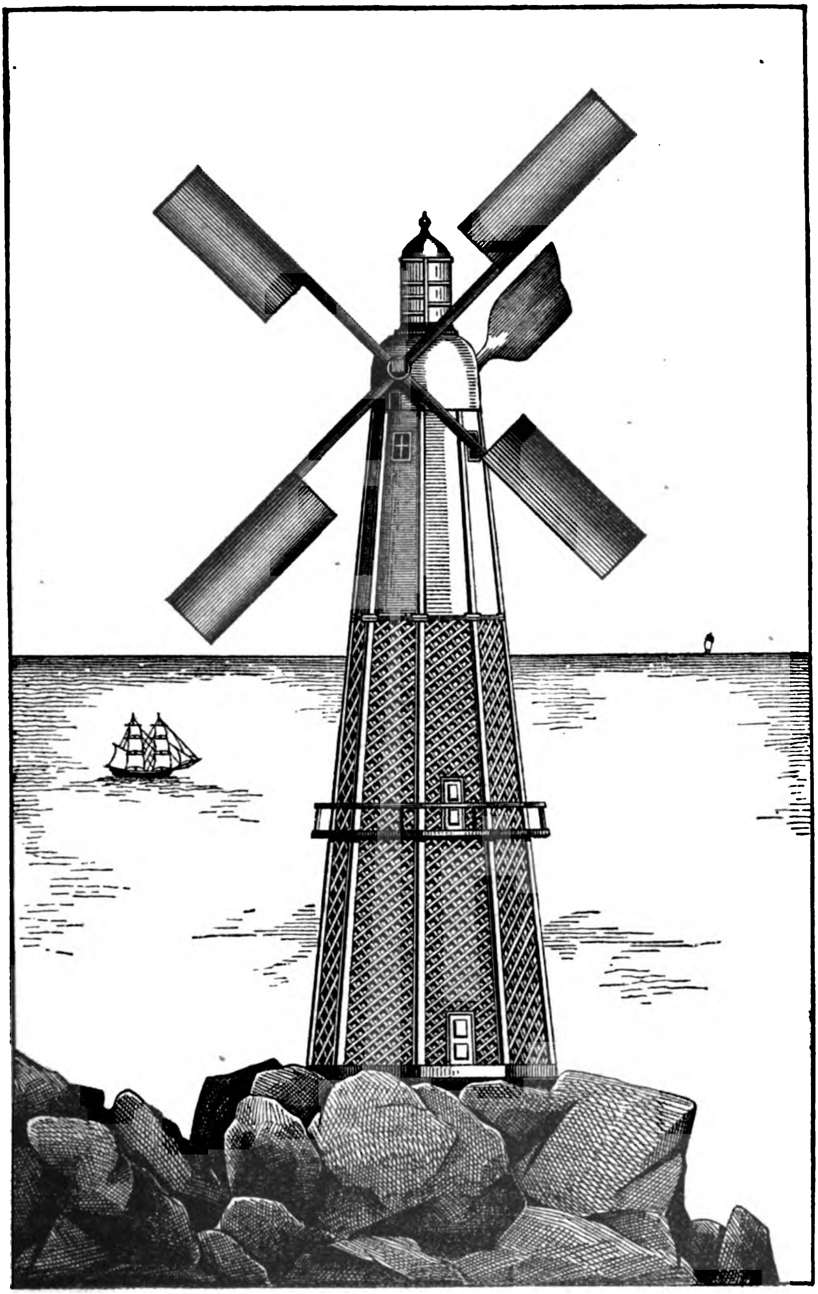
This is an important invention, which, if it proves successful, is destined to revolutionize the light-house system of the world. Many competent engineers and electricians in New Zealand who have examined the plant and working models unhesitatingly declare their belief in the practicability of the scheme. The "Hannaford Light" invention embraces a number of improvements in the construction of cast-iron towers for beacons, or light-houses, including windmill attachment for generating electricity to be stored and used in the form of light for the lantern and of power to turn the windmill in times of calm and ring a bell during fogs. Mr. Hannaford, the inventor of the light, has worked it privately for some years before making it known to the world, until now it is as nearly perfect as possible. Not only are the foundations and frame-work designed with great care and skill, but the electric and other attachments are so devised as to be almost entirely automatic in their action.

I append the following extract from a communication in the New Zealand Herald of the 16th of April, 1890, written by Mr. William Anderson, civil engineer. Mr. Anderson is engineer to the city of Auckland, and stands high in his profession.

> I have had frequent opportunities of inspecting Mr. Hannaford's design and model and of hearing his explanation of it. The only doubt about the design is producing the light by electricity, the motion being a windmill. All novel designs are at first treated with caution, and justly so if expensive.
>
> The arrangement in this light, however, seems to be satisfactory, as the American Brush Electric Light Company are prepared not only to supply the necessary plant for a given sum, but are also prepared to enter into a bond for a given time to produce a 15,000 candle-power light and the motor to toll the warning bell without a break. This corporation would not be likely to commit themselves were there any doubt on the matter.

Having heard so much of this invention, I deemed it of sufficient importance to communicate with Mr. Hannaford and endeavor to obtain from him a detailed description of the most striking peculiarities of his invention, to which I received the following reply, dated Auckland, June 24, 1890:

> DEAR SIR: I thank you greatly for your esteemed communication, and regret that, through my invention not having as yet been patented, I can not give you full explanatory information. What I can do must be in fragmentary form. The illustration will show you the shape of the Hannaford light. It is in three tiers up to the revolving cupola (which carries the lamp), but, although the lamp, of course, revolves with the cupola, the arc within does not, but is always broadside to one desired direction, the lens pully at its back facing (that is, the back of the lens) the land. Now, the lens has spring slides, which, when operated, send electric flashes that can be plainly discerned a distance of at least 30 miles inland. Each set of flashes are different from each other and represent the letters of the alphabet. An expert within the light-house can communicate to an expert many miles inland any thing of importance—a supreme value in the event of a marine disaster or in war time. Again, the arc can be bent downwards and upwards, swayed to right or left, or all round the compass, thus making it a great "ocean searcher." Again, the arc is automatic, does its own lighting and extinguishment to an hour, a minute, or a second. The storage of electricity is so novel that it is absolutely impossible to run short, even for an hour, of the full strength of the 15,000 candle-power, not even if there were a dead calm of six months' duration. Now, the illustration of the external appearance of Hannaford's light which I inclose would be misleading without explanation. There is, in reality, no lattice iron-work in the base and central tiers; on the contrary, they would be like the top tier. It was necessary to introduce this lattice work in the working model so as to be able to observe the internal arrangements of the tower. It is impossible for it to get out of order or need repairing, as the mechanism and general arrangements are so simple and yet durable.
>
> The following is a synopsis of values of the Hannaford light:
>
> (1) Its cheapness and rapidity of construction.
>
> (2) Its portability. It could be kept in stock and sent by water or rail to any place where required and put up in a week, being put together in parts, and all those parts are bolted and nutted together. Gangs of intelligent laborers, even, could upraise them, as all the parts are lettered or numbered.
>
> (3) They could be taken down and re-erected in a fortnight on another spot (a most important matter in war time).



THE HANNAFORD ELECTRIC LIGHT-HOUSE.

(4) If any one of the parts was fractured or injured in any way, by sending the letter or number to the foundry where the beacon was made a new part could be cast to replace the fractured number or part.

Cost in Auckland, free on board, $31,433. This includes cost of erecting, testing, and delivery on board vessel.

J. D. CONNOLLY,
Consul.

UNITED STATES CONSULATE,
Auckland, June 24, 1890.

ORGANIZED LABOR IN NEW ZEALAND.

REPORT BY CONSUL CONNOLLY, OF AUCKLAND.

CONDITION OF LABOR.

The condition of the New Zealand laborer is, perhaps, as comfortable as any of his class in the world. Wages are reasonably high and produce cheap. The climate is mild and equable, thus adding additional comforts to his lot. He suffers from neither extreme heat nor cold. He has more privileges, more holidays and half-holidays in the year than are obtainable in any other country. He works less hours in the week and receives more pay in proportion to the number of hours he toils than he would in most countries. He is well housed and clothed; in fact, he is well provided for in every respect. He is not degraded because he toils for a livelihood. His children are educated at the expense of the State, even the higher branches of education being open to the poorest child in the colony. All may graduate at the universities of New Zealand at the expense of the tax-payers.

LABOR UNIONS.

There is no country in the world, perhaps, where labor is so thoroughly organized as it is in New Zealand. Nearly every branch of labor, where a dozen men can be conveniently brought together, are organized into a union, and these unions affiliate with others, thus forming a powerful combination of labor, which, for unanimity of sentiment and common interests, I believe, has no equal. For instance, if the tailoresses' union decides to go out on strike, the seamen's union, the bakers', the boot-makers', farm laborers', and every other conceivable union in the colony make common cause and come to the rescue at once, not by expressions of sympathy alone, but by substantial weekly or fornightly contributions to the strikers. This is done even where those directly engaged in the struggle are not affiliated with any other labor organization in the colony.

The labor unions of New Zealand are irresistibly powerful. They have the welfare and destiny of the colony in their own hands, and they can demand and obtain any reform they may desire. Capital, in its present disorganized state, is utterly powerless to resist the compact combinations of labor which confront it at every turn. The sympathies of the masses of the people generally are with the unions, and must continue so while there is a disposition among the union men to be reasonable in their demands, Eight hours per day constitute a day's work in this colony in nearly all branches of labor. Railway employés, however, had to work ten hours each day until lately. There are over four thousand railway employés in New Zealand, and their union is supposed to be among the strongest in the colony. The New Zealand railways are managed by a commission appointed by Parliament for a certain number of years. These commissions have sole control of all matters pertaining to the operation of the railways, and are not subject to instructions from the Government even. A few weeks ago the employés conceived the idea that they had many grievances to be redressed, and accordingly communicated with the commissioners. A conference was arranged between the leaders of the Railway Union and the commissioners, which resulted satisfactorily to the men.

The question of eight hours per day for all men employed on the Government railways proved to be the only stumbling block that stood in the way of an amicable adjustment of all differences. The commissioners gracefully yielded all points in dispute, even the eight hours per day continuous labor; but the leaders of the union demanded that eight hours of intermittent labor should constitute a day's work. This the commissioners were unwilling to concede, but, to prevent a strike, which was imminent, not only of railway men, but of seamen, coal miners, etc., a compromise was finally effected which resulted in nine hours of intermittent labor being recognized as a day's work on all the Government railways of New Zealand.

The labor unions of New Zealand have already accomplished a great deal in the way of much-needed reforms. It is to be hoped its demands will always be created in equity and tempered with moderation. If these principles are adhered to, it will continue its sphere of usefulness indefinitely.

CIVIL SERVICE UNION.

Parliament is in session at present. A majority of its members, actuated by a laudable desire to curtail expenses—to retrench in every department of Government—asked the Government, as soon as the estimates for the ensuing year were submitted, to reduce them by at least $250,000. This the Government was unwilling to do, claiming it was impossible to make any reduction without seriously affecting the public convenience. The retrenchers were, however, inexorable, and insisted upon retrenchment. The Government, seeing that a crisis was inevitable if they persisted, finally, rather than resign, yielded the point.

As soon as it became definitely known that the Government acceded to the demands of the "economists," the Government employés became alarmed lest their salaries might be cut down, if, indeed, some of their offices might not be abolished altogether. The only means by which they could successfully resist any encroachments upon their rights or reduction of their salaries was by forming themselves into a union. A union of nearly all the "civil servants" in the colony was accordingly organized for the purpose already stated. This is a new feature in trades-unionism in this colony which has created considerable interest. The Government is pledged to make the reduction referred to; but, if the attempt is made to reduce the number of offices or the salaries of the employés, a strike is almost certain. What the outcome of this new organization may be, or what influence it is destined to wield upon the affairs of Government, would, at this early stage of the proceedings, be difficult to forecast. Owing to the compact form of the labor unions throughout the colony, it is, I believe, safe to assume that, should any misunderstanding arise, labor will be successful.

KNIGHTS OF LABOR.

A member of the above order organized several lodges of the Knights of Labor throughout New Zealand a few months ago. It is understood the organizer (an American) was fairly successful; but, strange to say, the order is not making as much progress as was anticipated by its friends. Many of the local labor organizations do not care to affiliate with it. The Auckland Costal Seamens' Union refused to recognize the Knights of Labor as a labor society. The reasons given are that the principles of the "Knights" are too liberal in their character, embracing all kinds of labor except, I believe, lawyers, doctors, and ministers. The New Zealand labor societies are too exclusive for such an organization as the Knights of Labor; therefore, I am inclined to believe the order will not prosper here. No man is permitted to join any of the local unions unless he is actually employed in the same business as the members of that particular union.

EARLY-CLOSING ASSOCIATION.

This, another well-organized and determined branch of the labor unions, is composed principally of the clerks and assistants employed in the retail stores of the colony. The objects of this organization are to establish branches in all the populous centers for the purpose of obtaining 6 o'clock p. m. as the universal closing hour of retail shops throughout New Zealand, from Monday to Friday, inclusive, and 1 o'clock p. m. on Saturday. There are branches of this association established in all the principal towns of the colony, and, as the society is rapidly increasing in members as well as in public favor, it is anticipated its efforts will, in a short time, be brought to a successful issue.

To the intelligent methods adopted by the members of this association to secure a favorable consideration of the justice of its claims by the public may be attributed the popularity the movement at present enjoys. There is no attempt at aggressive or coercive measures; the public ear is reached through the columns of the press and individual petition. Hence it is that the merits of the early-closing movement are so generally appreciated.

The shop-keepers, in some instances, very naturally resent the demands of their employés and vigorously protest against the movement as an unwarranted interference with their business and privileges as private citizens. There is no doubt that, if the early-closing movement is successful, it will entail considerable hardship in individual cases; but, it is contended, the great majority will suffer no loss, and, if the agitation continues to grow in public favor, the disunited protests of the shop-keepers will prove unavailing. The combination is too powerfully organized, backed up, as it is, by all the labor societies of the colony.

Organized labor in this, as in all other matters pertaining to its own welfare, when honestly advised and intelligently directed, must ultimately succeed.

LABOR ARBITRATION.

There is at present a bill pending before the New Zealand Parliament which is calculated to do away with the necessity of having strikes and establish the rights of the laboring classes. The object of this bill is to create a board of arbitration, to which all disputes between laborer and employer must be submitted for adjudication, the decision of the board to be binding upon those concerned. The board is to be constituted as follows: The employer or employers are to appoint two members, and the labor unions two, these four to choose and elect an umpire. There is very little doubt but that this bill will be passed during this or the next session of Parliament. It is therefore hoped that the passage of this bill will remedy the growing tendency to unreasonableness, which has of late, in at least some instances, manifested itself among the more powerful unions, and thus place capital and labor upon a better understanding if not upon a more equitable basis.

LABOR LEGISLATION.

The Government, recognizing the growing importance and power of the trade and labor unions of the colony, have, at the instance of the labor unions, introduced a measure which, it is thought, will meet the approval of the working people. The following are the principal points of the bill:

The factories and shops bill.—Under the provisions of this bill power is given to appoint inspectors and medical authorities to examine all factories or workshops where men and women are employed, to enforce compliance with the law relating thereto, and to punish any infringements.

The sanitary provisions of the act are very stringent, and are to be administered at the discretion of the local boards of health. Factories must be kept clean, properly lighted and ventilated, and not overcrowded. A certain space must be allotted to each worker according to the nature of the work. Except in newspaper offices, no person under eighteen years of age shall be employed continuously for more than five hours without an intermission of at least half an hour. No person is allowed to take his meals in the factory, and in all such factories special rooms must be provided for meals. Bakehouses are especially dealt with, and the provisions of the act are to be enforced by the local board of health. Bakehouses must be kept scrupulously clean, lime-washed, and are not to be used as sleeping places.

Upon the age of employés the act is very explicit. The ages are fixed under which no person shall be employed in certain deleterious trades, such as match making, etc. No person shall employ in any factory or work-room either male or female under the age of sixteen years for more than forty-eight hours in any one week in the manufacture of articles for sale or trade. No person under fourteen years is to be employed in any factory or work-room, and none under fifteen years shall be so employed unless such person has passed the fourth standard of education. Persons under sixteen years are not to be employed without a certificate of fitness for employment shall have been received from the medical officer of the district. No boy under fourteen years and no girl under sixteen years shall work in any factory or workshop between the hours of 6 in the evening and 6 in the morning. Boys under sixteen years and girls under eighteen years are not allowed to work as type-setters in any printing-office for longer than eight hours each day, nor between the hours of 6 in the evening and 6 in the morning, except in cases of emergency, without special permission from the inspector of the district. Every woman and person under eighteen years shall have five full holidays in the year, and any other day set apart by the proclamation of the governor as a public holiday; also, half-holidays every Saturday afternoon from 2 o'clock. Ordinary working-day wages are to be paid to the women and persons under eighteen years while enjoying such holiday or holidays.

All stores, other than book-sellers, news agents, druggists, coffee-houses, confectioners, eating-houses, fruit and vegetable stores, fish and oyster stores, and restaurants and tobacco stores, shall be closed every evening of the week, except Saturdays, at 6 o'clock, and on Saturdays not later than 10 o'clock, provided that on any day immediately preceding a public holiday such store may be kept open until 10 p. m. Any city or borough may make by-laws for closing (except those exempt) any store at an earlier hour, if necessary, and limiting the total hours of labor to eight per day.

The act provides various penalties, amongst others a penalty of $500 for death or injury of any employé by neglect of employer. The whole or part of this sum may be paid to the injured person, as the colonial secretary may direct. Parents are held responsible, and liable to a penalty in certain cases, for permitting their children to work in violation of the provisions of this act.

All persons under age presenting themselves at any factory or work-room for employment must come provided with a certificate from competent medical authority that such person is under the specified age and physically fit to labor. Every person, firm, or corporation furnishing employment to others contrary to the provisions of this act is subject to heavy penalties.

In many instances the press of the colony—even those who strongly advocate the cause of labor—criticise the propriety of the introduction of such measures as being injurious to the development and establishment of local industries throughout the colony; while others, less favorable to labor, boldly assert the act is dangerous to the successful maintenance of existing interests. It is described as being "overofficious."

There is no doubt that, owing to the safeguards which this bill surrounds the employment of labor with, together with the tendency of the labor organizations themselves to demand excessive privileges and pay, it seriously threatens a continuance of the present cordial relations that exist between employer and employé.

Unless there is a modification of the demands of labor in the near future, a crisis is certain. Capital is frightened at the turn affairs are taking in connection with this labor movement, and will not be employed in new enterprises or in developing new industries until a better understanding between it and labor is obtained, which means a serious loss, not only to labor, but to every interest in the colony at large.

WAGES IN NEW ZEALAND.

Table showing the average rate of wages in the colony during the year 1889.

Description.	Rate.
Agricultural labor.	
Farm laborers:	
With board, per week	$4.86
Without board, per day	1.58
Plow-men:	
With board, per week	10.46
Without board, per day	1.58
Reapers:	
With board, per week	11.67
Without board, per day	2.31
Mowers:	
With board, per week	14.84
Without board, per day	2.19
Threshers:	
With board, per week	11.43
Without board, per day	1.94
Pastoral labor.	
Shepherds, with board, per annum	304.15
Stock keepers, with board, per annum	294.42
Hut keepers, with board, per annum	216.43
Station laborers:	
With board, per week	4.25
Without board, per day	1.21
Sheep washers:	
With board, per day	1.09
Without board, per day	1.52
Shearers, with board, per 100 sheep sheared	3.89
Men cooks on stations, with board, per week	4.86
Servants.	
Married couples:	
Without family, with board, per annum	330.58
With family, with board, per annum	306.58
Grooms, with board, per week	5.59
Gardeners:	
With board, per week	5.59
Without board, per day	1.70
Cooks, with board, per week	4.74
Laundresses, with board, per week	3.65
General house servants, with board, per week	2.67
House-maids, with board, per week	2.79
Servants—Continued.	
Needle-women:	
With board, per week	$3.65
Without board, per day	1.09
Nursemaids, with board, per week	2.19
Artisan labor (per day, without board).	
Masons	2.55
Plasterers	2.67
Brick-layers	2.67
Carpenters	2.43
Smiths	2.43
Wheelwrights	2.43
Shipwrights	2.55
Plumbers	2.43
Painters	2.19
Saddlers	2.19
Shoe-makers	2.19
Coopers	2.43
Watch-makers	2.67
Miscellaneous.	
General laborers, without board, per day	1.58
Stone breakers, without board, per cubic yard	.79
Seamen, with board, per month	32.43
Miners, without board, per day	2.19
Engine drivers, without board, per day	2.55
Tailors, without board, per day	2.06
Tailoresses, without board, per day	.85
Dress-makers, without board, per day	.97
Milliners, without board, per day	1.21
Machinists, without board, per day	1.09
Store-keepers, without board, per day	2.31
Store-keepers' assistants, without board, per day	1.21
Drapers' assistants, without board, per day	1.58
Grocers' assistants, without board, per day	1.33
Butchers	1.70
Bakers, without board, per day	1.94
Store-men, without board, per day	1.70
Compositors, without board, per day	2.43

PRICES IN NEW ZEALAND.

Table showing the average prices of produce, live-stock, provisions, etc., during the year 1889.

Articles.		Price.
Agricultural produce.		
Wheat	per bushel	$0.89
Barley	do	.81
Oats	do	.66
Maize	do	.70
Bran	do	.24
Hay	per ton	18.60
Flour and bread.		
Flour:		
Wholesale	per ton*	51.82
Retail	per bag†	1.50
Bread	per loaf‡	1.50
Live-stock and meat.		
Horses:		
Draft	per head	92.46
Saddle and harness	do	58.39
Cattle:		
Fat	do	30.60
Milch cows	do	25.54
Sheep, fat	do	2.67
Lambs, fat	do	1.58
Butchers' meat:		
Beef	per pound	.08
Mutton	do	.06
Veal	do	.08
Pork	do	.10
Lamb	do	.10
Dairy produce.		
Butter:		
Fresh	per pound	.20
Salt	do	.14
Milk	per quart	.08
Dairy produce—Continued.		
Cheese:		
Colonial	per pound	$0.12
Imported	do	.30
Farm-yard produce		
Geese	per pair	1.70
Ducks	do	1.09
Fowls	do	.79
Turkeys	per head	1.33
Bacon	per pound	.16
Ham	do	.20
Eggs	per dozen	.22
Garden produce.		
Potatoes:		
Wholesale	per ton	23.71
Retail	per cwt	1.58
Onions	per pound	.05
Carrots	per dozen bunches	.36
Turnips	do	.36
Cabbages	per dozen	.44
Miscellaneous.		
Tea	per pound	.56
Coffee	do	.40
Sugar	do	.07
Rice	do	.06
Salt	do	.02
Soap	per cwt	3.77
Candles	per pound	.17
Tobacco	do	1.39
Coals	per ton	8.38
Fire-wood	per cord	6.44

* 2,000 pounds. † 50 pounds. ‡ 4 pounds.

J. D. CONNOLLY,
Consul.

UNITED STATES CONSULATE,
Auckland, June 30, 1890.

SAVINGS-BANKS OF LYONS.

REPORT BY CONSUL FAIRFIELD.

Deposits.—One franc is the smallest amount received. I may also add that 2,000 francs is the largest amount that they will allow to the credit of any one depositor, including interest.

Substations.—There are substations provided for the convenience of depositors, but no arrangement is made for collecting money otherwise than by depositing, either at the bank or at one of the substations.

Deposit bank.—The depositor receives a book upon making his first deposit. The only way in which I could obtain a book was by making a deposit of 1 franc, which I did in a fictitious name, thus paying 1 franc for the book.

Interest.—The rate of interest is 3½ per cent., and as soon as the deposit amounts to 5 francs it begins to draw interest, but the interest is computed from the 1st or the 16th of the month following the date of the deposit.

Withdrawals.—The depositor must present his book. For small amounts he can draw without previous notice. He signs a receipt, with a check. He loses interest upon what he draws out from the 1st or the 16th day of the month next preceding the date of his drawing.

Business restrictions.—The savings-banks do not transact a commercial business; they are strictly banks for savings.

Liabilities.—Savings-banks are secured against failure while the nation stands. The funds are loaned to the nation. The interest is paid by the nation. As to commercial banks, the stockholders are responsible to the amount of their stock to all depositors, and no more.

Bank tokens.—Savings-banks do not give their customers any kind of tokens, nor do they publish their names periodically.

Commercial banks.—Commercial banks make no charge on checks, and they allow interest on all amounts that remain in the bank three months or over. The interest varies from 1½ to 2 per cent., according to the amount of the deposit.

Banking hours.—The business hours for commercial banks are ordinarily from 9 a. m. to 4 p. m., sometimes from 9 to 12 and from 2 to 6; for savings-banks, from 9 to 4, and on Sunday, also, for deposit, from 9 to 12.

Penny school system.—The penny school-savings system is in operation in connection with the post-office system. I send you herewith a sheet which is used, and upon the back of it are explanations:

EXPLANATORY NOTICE.

[Translation.]

Any person, not being in a situation to make the minimum deposit of 1 franc, and desiring to make a saving, can buy postage-stamps of 5 and 10 centimes and stick them in the space on the other side.

When the spaces contain either ten stamps of 10 centimes, or twenty stamps of 5 centimes, or a certain number of stamps of 10 and of 5 centimes making together 1 franc, this sheet can be placed in any post-office co-operating with the National Savings-Bank, where it is received as legal tender, provided that no one of these stamps is altered, spotted, or torn.

When the bearer of a sheet is already in possession of a book of the National Savings-Bank, the deposit of 1 franc is entered upon it; if he has no book, one in the ordinary form is given him.

There can be deposited in the shape of postage-stamps on the account of any one person no more than 10 francs per month.

The blank forms of the savings sheet are delivered gratuitously to all persons who ask for them at the post-office.

EDMUND B. FAIRFIELD,
Consul.

UNITED STATES CONSULATE,
Lyons, August 28, 1890.

SILK IN INDIA.

REPORT BY VICE-CONSUL BODE, OF BOMBAY.

Silk is not produced in the Bombay Presidency. The whole of the material imported here is usually obtained from China, and is consumed principally by hand-loom weavers in Gujrat, Aniritar, and the Ghat districts.

The following newspaper clipping concerning the cultivation of silk will be of interest to American sericulturists:

SILK-WORM CULTIVATION.

To the Editor of the Times of India:

SIR: The manufactures of velvets, silks, kincobs, etc., at Ahmedabad, Surat, Tanna, Choul, and other places on the coast and inland are mentioned by various authors, but there seems to be no record of the raising of silk-worms in these localities before the present century. Heeren says that "cotton and silk were first produced here (in Hindoostan) and continue to be so in an especial degree, though their cultivation has been gradually extended to other countries." And in Vol. V. "Asiatic Researches," p. 62, in the account of Hindoo classes from Sanskrit authorities, express mention is made of the tribe of weavers, under the name of Tantravaya, in the original division of the Indian nation by Menu, as also of "the tribe of Pundraca, feeders of silk-worms, and Pattasucracara, or twisters of silk;" and, although this may, perhaps, refer more to northern and eastern India than to its western parts, the presence of the Tusser worm in a wild state in our jungles points to the probability of its being a descendant of some species whose produce was extensively utilized in former times, and which may possibly have given rise to the idea that it grew on the trees it was found upon.

That silk has been and is now produced in western India is certain, but it seems that it is only within the last few years that it has been engaged in as a profitable industry, and it is even now not clear that the success in its production is any thing near that which has been attained in the northern provinces. In the more eastern parts it seems to have always been a marketable product, until the export was practically stopped in the interest of the home trade. It is, however, satisfactory to note that in the following reports, made by Mr. W. Prinsep, an expert of "great skill in such matters," to the Calcutta Horticultural Society in May, 1831, on two specimens—one from Poona, raised by an Italian under the auspices of the collector, and another from the estate in Salsette of Mr. Framjee Cowasjee, who had brought worms and skillful managers from China—it seems to be possible to develop a lucrative silk industry in these parts, notwithstanding that from causes which do not appear to be anywhere stated the industry was not at that time successfully inaugurated:

REPORT ON NO. 1.

"*The Poona skein.*—Letter A, No. 1, of four to six cocoons would be the denomination here of a thread of this size; harsh and dull; has very much the appearance of China silk; the thread is very uneven, fleecy, and endy; these terms apply to the want of equal compactness in the thread, the fault arising most probably from some defect in bringing the different cocoon threads together. It is obviated here by a wheel which crosses the two threads as they rise wet from the basin and serves to bind them firmly before they run into the skein on the reel. It would be a defect seriously felt by manufacturers of silk of this size.

REPORT ON NO. 2.

"*The Salsette skein.*—Rather finer, but would be ranked under the same class A, No. 1, four to six cocoons. It is bright, soft, and mellow, the color not quite so pure as the Poona silk, but quality generally superior, and the reeling decidedly so. This thread is round, even, and strong, but it should be less endy in the skein; it is difficult to judge of this defect unless the skein has escaped handling by others. This silk is superior to any that is exported from Bengal, although single skeins are occasionally seen of equal value.

"In both the above factories the reeling might be much improved by adopting the Bengal size of skein. instead of imitating that which comes from China. It is more easily handled in the making and putting up here, as well as being more conveniently applied to general purposes in the silk-mills of England."

As the present time seems opportune for reviving and pushing this industry in the Bombay Presidency, it is desirable that, if there are any notices in the old journals of the Bombay Horticultural Society or elsewhere touching on the Poona and Salsette (Powai) silk industries, and especially on the causes of failure, they should be republished in view to ascertain whether in the more recent lights of modern sericulture, remedial measures can not be adopted to overcome existing difficulties, if there are any other than climatic influences, which would seem to have been overcome by the Pundraca ages ago. Skill and enterprise are doubtless the great needs in this as in other industries in this country, and, if Government or any one else will only take steps to prove that it can be made to pay, they will get many to acquire the skill and to carry on the production, the natives being, doubtless, as well qualified for this as they are for the cotton industry, which seems to be naturally adapted to their capabilities.

As a *modus vivendi*, however, it may be pertinent to suggest that sericulture might be a profitable and interesting work for our soldiers and their families in their leisure hours, as well as to Eurasians, who have nothing more certain to turn to; and, as it has within the last few years become extensively adopted and influentially patronized at home, countenance might be given to a similar movement here, a pamphlet of instructions, with hints as to peculiarities in local "education" and facilities for obtaining food and "grain," being compiled by some one with a knowledge of the subject and circulated in the first place at the cost of Government; or, failing that, sufficient interest might be aroused in regiments to induce them to take it up of their own accord, if any one capable of doing so were to publish a description of the procedure and whence seed grain could be procured.

The mulberry would take several years to produce a first crop of leaves; but there are other foods which are probably more easily procurable, as it is stated that the worms in the Dinapore districts are fed on a species of "bicinus." In regiments the mulberry could be cultivated by the men in their gardens, which would be handed over, on relief, from one regiment to another. In any case, however, initial experiments could be made at a very small cost at the proper season, and where mulberry-trees or other suitable food now exists; and if any one with local or even home experience would kindly set us going, it might be the means eventually of adding to many a meager income, and certainly of introducing a healthful and beneficial employment wherever it may be adopted.

H. S. BODE,
Vice-Consul.

UNITED STATES CONSULATE,
Bombay, July 4, 1890.

THE LINSEED CROP OF INDIA.

REPORT BY CONSUL-GENERAL MERRILL, OF CALCUTTA.

In compliance with the Department instructions of July 3, 1890, I inclose the reports published by the revenue and agricultural department of the Government of India, containing all the information relative to the last year's crop of flaxseed.

The linseed crop was reaped in April last and it will be sown again in October. I shall take pains, as soon as the seed is planted, to watch its progress and report to the Department for publication in the CONSULAR REPORTS.

SAMUEL MERRILL,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Calcutta, August 26, 1890.

LINSEED CROP REPORTS.

[Inclosure in Consul-General Merrill's report.]

THE OIL-SEED CROPS OF THE NORTHWESTERN PROVINCES AND OUDH.

CALCUTTA, *December 28, 1889.*

The first report, relating to the condition of the crop up to December 10, is as follows:

"The monsoon rains were normal and generally well distributed, with sufficient breaks for intermittent plowing for winter crops. In September the fall was below the average, particularly in the central and western districts, while in October clear weather prevailed almost throughout the province. Owing to insufficient moisture, irrigation had, in some of the western districts, to be resorted to at sowing time; the soil was, however, exceptionally well prepared in most districts, and germination was good. The area is put at about 6 per cent. less than last year's area, owing to the absence of rain. Prospects are poor in Bundelkhand and elsewhere for unirrigated lands, but good for irrigated. Much depends on rain falling before the middle of January."

THE LINSEED CROP IN BERAR.

CALCUTTA, *December 30, 1889.*

The first report on the crop of 1889–'90 is as follows:

"Acreage under linseed below that of last year, owing partly to rotation of crops and partly to season being favorable for cotton and *jowari* (great millet). Outturn estimated from 10 to 16 annas."

PROSPECTS OF THE LINSEED CROP IN THE CENTRAL PROVINCES.

SIMLA, *January 4, 1890.*

The first report on the prospects of the current season's crop is as follows:

"The rain-fall of September and the first half of October, upon the character of which the welfare of the cold-weather crops so largely depends, was evenly distributed and extremely favorable for sowing operations.

"At the end of the third week of October rain fell in all districts, except Saugor and Hoshangabad. This fall was exceedingly heavy in Wardha, where 7½ inches were registered, and in the majority of districts it averaged from 1 to 2½ inches, while in the districts of Raipur and Bilaspar it was very light.

"This fall, which was followed by light showers in the ensuing week, was generally beneficial, though in a few areas it necessitated the resowing of both wheat and linseed.

"The prospects of the crop are at present encouraging, and no disquieting reports have been received. The seed seems to have germinated well, and the young plants are generally thriving. At the same time it is never safe to prognosticate too confidently at so early a stage, and the most that can be said is that the outlook so far is decidedly promising.

"The present report being only based on general information, it is impossible as yet to say to what extent the decrease in the area sown, which was so marked last year, has been made up during the current season.

"As regards linseed, such an assumption would be hazardous, as the effects of the succession of poor linseed crops experienced can not be counterbalanced by the favorable outlook of a single season, and cultivators are naturally timid about entrusting any largely extended area to so precarious a crop.

"The prices of linseed are higher in the Harda and Nagpur markets than they were last year, while they have fallen at Jabalpur and Raipur; but, while the rise in the two former markets is slight, the fall in Raipur is almost a rupee per maund. Mere prospects are not, however, sufficient to cause a general fall in the price of linseed, as it is a crop which is so easily and suddenly spoilt, and that often on the very eve of the harvest."

PROSPECTS OF THE WHEAT AND LINSEED CROPS IN THE CENTRAL PROVINCES.

SIMLA, *March 19, 1890.*

The second report is as follows:

"A preliminary report on the prospects of these crops has already been published on the 4th of January last.

"This season has resembled that of last year in the entire absence of cold-weather rains. A quite insignificant proportion of the wheat crop and none of the linseed crop is irrigated in these provinces, and both crops have had to make shift with the moisture which the ground contained at sowing time. Fortunately, in most parts of the provinces this moisture had been replenished by heavy falls of rain during the third week in October, and it is entirely owing to the occurrence of these rains that the current season's crops, though falling very short of what they might have been, are very much better than those of last year.

"The 'anna estimates' returned by district officers are, it is feared, not referable to a uniform standard, as there is some confusion as to the meaning to be attached to 16 annas, which is locally understood to express a full crop; whereas, under the orders of Government, it should be used to express an average. If 16 annas be taken to represent an average, it will follow that many districts have never had so much as an average crop since returns were first received from them. To correctly appreciate the figures, the value of 16 annas must be taken as an ordinary full crop, which means an outturn of wheat ranging in different parts of the provinces from 6½ to 7½ times the seed sown, that is to say, from 8 to 9 maunds per acre.

"The only districts in which the estimated anna outturn of wheat does not reach or nearly reach 12 annas are Seoni, Betul, and Chhindwara, on the Satpura plateau, and Hoshangabad and Nimar, forming the western end of the Narbadda valley. The short crops on the Satpura plateau are accounted for by the comparative shallowness of the soil, which is less able to dispense with cold-weather rain than the deeper lands of the valley districts. Hoshangabad and Nimar have suffered from scantiness of rain at sowing time, as the fall which occurred during the third week of October did not extend to them, and they have been practically rainless since the first week of that month. Under the circumstances it is surprising that their crops are not worse. Hoshangabad is the principal wheat-exporting district in the provinces including within its area over 1,000 square miles of wheat fields.

"In the Nursingpur and Bhandara districts considerably over an average crop is expected.

"Elsewhere the crop is estimated to be of about average productiveness, that is to say, it a expected to yield from 6 to 7 maunds (from 8 to 9½ bushels) per acre.

"The linseed crop is much less dependent on winter rain than wheat. Indeed, as a rule, winter rains do it more harm than good. The outturn of linseed will be more satisfactory than that of wheat, especially in the tracts where linseed growing is of most commercial importance. The Wardha district reports a bumper crop, and the outturn of all the Nagpur country will be above average. The yield per acre of linseed is much smaller than that of wheat. An average crop of linseed in these provinces is not estimated to yield more than 3 maunds to the acre."

PROSPECTS OF THE LINSEED CTOP IN BERAR.

SIMLA, *Marrh 4, 1890.*

The second report is as follows:

"Acreage under linseed, 252,590 acres, or 17 per cent. less than last year due to the stimulus given to cultivation of cotton by a good crop and the high prices of last year. Condition of crop favorable; outturn estimated at 12 annas."

PROSPECTS OF THE LINSEED AND RAPE-SEED CROPS IN TTH NORTHWESTERN PROVINCES AND OUDH.

SIMLA, *March 12, 1890.*

The second report on the oil-seed crops of 1889-'90, showing condition up to the 22d of February, is as follows:

"There were hardly anywinter rains. The crop on unirrigated land is, therefore, very stunted and poor. There were no fungoid diseases, but the crop on low lands suffered a good deal from frost. Taking 100 to denote a full average condition, the condition of the present crop stands as follows: Meerut and Agra divisions, 60; Rohilkhand, Allahabad, Jhansi divisions 66; Benares division, 80; Oudh, 60."

THE LINSEED CROP OF THE CENTRAL PROVINCES.

SIMLA, *May 28, 1890.*

The final report of the linseed crop in the central provinces for the season 1889-'90 is as follows:

"The characteristic features of the season have been already reported upon in earlier reports, and all that need be said here is that there was a complete failure of the usual cold-weather rains, no showers occurring after the sowing of the linseed crop till the first week in March, when they were too late to be of use. They were accompanied by hail in some places, and a good deal of damage was caused in the Seoni district.

"Regarding the areas for the current season, it is to be observed that, owing to the general employment of the village accountants on survey work, they are, in most cases, little better than estimates. In the case of all districts, except Raipur and Bilaspur, they are, however, based on statistics of fair accuracy which were collected two or three years ago. For the Raipur and Bilaspur districts statistics of actual area have not been available at all during recent years, and the estimates are, it is believed, very wide of the mark on the side of understatement.

"A very large decrease in area is noticeable—amounting, indeed, to 25 per cent. This may probably be ascribed to the fact that for the past four years the linseed crop has been very disappointing, and cultivators have abandoned its growth in favor of a less precarious crop.

"It has during the current season yielded rather better than wheat, as it requires less moisture, and the outturn has been by no means a bad one. Indeed, in the Nagpur country very nearly, if not quite, a full crop was gathered, and an improvement in export may with some confidence be expected. Up to date, since October 1 last, the exports have been very considerably larger than in either of the two preceding years."

Statement showing the acres under linseed in each district of the central provinces during the rabi season of 1890, with the estimated outturn per rupee.

District.	Normal area.*	Area of current season.	Increase or decrease.	Estimated outturn per rupee.
	Acres.	*Acres.*	*Acres.*	*Annas.*
Saugor	37,337	26,616	— 12,781	14
Damoh	45,674	46,510	+ 836	10
Jabalpur	62,393	†42,372	— 20,021	11
Mandla	8,922	10,888	+ 1,966	12
Seoni	15,841	11,994	— 3,847	12
Narsinghpur	8,334	8,115	— 219	11
Hoshangabad	24,402	12,270	— 12,132	10
Nimar	7,370	†3,000	— 4,370	8
Betul	3,589	5,440	+ 1,851	8
Chhindwara	9,381	8,557	— 824	11
Wardha	144,289	110,975	— 33,314	14
Nagpur	137,907	78,586	— 59,321	15
Chanda	76,299	55,140	— 21,159	16
Bhandara	50,765	42,652	— 8,113	12
Balaghat	20,427	17,674	— 2,753	12
Raipur	158,808	†120,000	— 38,808	10
Bilaspur	54,035	† 40,000	— 14,035	10
Total	865,773	638,789	—226,984	....

*Calculated on the statistics of the past five years.

† Estimates prepared by the provincial agricultural department, detailed statistics from district offices not being received.

THE LINSEED CROP IN BERAR.

SIMLA, *May 31, 1890.*

The final detailed report on the linseed crop in Berar for the season 1889–'90 is as follows:

"The total area covered by this crop in the year was 249,236 acres, against 304,620 acres in 1888–'89, being a decrease of 55,384 acres, or 18.1 per cent. This is the net result for the whole province; but, taking the districts separately, those of Wun and Basim show an increased area of 7.9 and 62.4 per cent., respectively, while there was a decrease in all the other districts of the province.

"In 1888–'89 the estimated outturn per acre, based on the average outturn for the five years ending 1887–'88, was taken at 2 maunds per acre, while in the year under report it is 2 maunds 22 seers, being based on the average outturn for the five years ending 1888–'89. This yields for the province an estimated gross outturn of 6,35,552 maunds in 1889–'90, as compared with 6,09,240 maunds in the preceding year."

Memorandum on the linseed crop in the Hyderabad assigned districts for the year 1889–'90.

District.	Area in crop.	Normal area, representing an average of five years.	Percentage of increase or decrease over previous year.	Estimated outturn per rupee.
	Acres.	*Acres.*	*Acres.*	*Annas.*
Amraoti	67,551	120,106	−18.9	12
Akola	49,850	107,954	−36.1	9
Ellichpur	19,816	33,450	−38.1	11
Buldana	24,374	63,985	−30.8	11
Wun	70,448	98,642	+ 7.9	10
Basim	17,197	24,582	+62.4	14
Total	249,236	448,720	−18.1	....

In Amraoti the decrease in area is due to the season being favorable for *kharif* crops, and there was no reason for rooting up any of them. The failure of later rains is said to be the cause of less than an average crop.

In Akola the decrease in area is due to the stimulus given to the cultivation of other crops of more value. The estimate on the outturn of the crop is made at 16 annas for 5 maunds per acre.

In Ellichpur last year the cotton crop was excellent, and brought a high price; hence cotton was extensively sown this year. The decrease in area was also due to rotation of crops. Failure of rain after the seed had germinated is the cause of the decreased crop; the land had not retained sufficient moisture to nourish the young plants.

In Buldana less area was cultivated, as the crop did not yield a good outturn last year; and there was, also, an insufficient rain-fall, which has reduced the prospects of a good crop.

In Wun *kharif* sowing was obstructed on account of heavy rains in the beginning, and so more land was available for *rabi*. Considering its condition, a 10-anna crop is estimated.

In Basim the high prices prevailing tempted cultivators to sow more land with linseed than in the previous year. The crop, at first, was in good condition, but deteriorated afterwards for want of rain during the seed-forming period.

THE OIL-SEED CROPS OF THE NORTHWESTERN PROVINCES AND OUDH.

SIMLA, *June 6, 1890.*

The final report on the oil-seed crops of the northwestern provinces and Oudh for the season 1889–'90 is as follows:

Area.—The area which linseed, rape-seed, and lahi (*Brassica juncea*) occupy as a sole crop is recorded separately by patwaris, and is returned as such in their annual return of winter crops. Returns this year have been received from all districts except Banda, Jhansi, and parts of Saharanpur, Mozaffernagar, and Unao. Making an estimate for these districts based on the comparative increase or decrease reported by zamindars over last year's area, the total area occupied by linseed as a sole crop amounts to 640,672 acres, and by rape-seed and lahi to 146,549 acres, against 511,679 and 141,220 acres, respectively, in the preceding year. The increase under linseed occurred principally in the districts of Allahabad, Mirzapur, and Gorakhpur, where its area in the preceding year was considerably below the normal.

The following table shows the area of pure linseed, rape-seed, and lahi in each division of the province:

Division.	Linseed.		Rape-seed and lahi.	
	1889.	1890.	1889.	1890.
Northwest Provinces:	*Acres.*	*Acres.*	*Acres.*	*Acres.*
Meerut	3,001	2,498	3,405	2,992
Rohilkhand, including Tarai	48,775	38,762	17,349	15,191
Agra	349	5	791	1,500
Allahabad	81,550	88,732	916	381
Jhansi	31,082	41,808	1,559	601
Benares	194,015	303,189	19,057	29,598
Total	358,772	474,994	43,077	50,263
Oudh:				
Lucknow	6,521	7,029	401	858
Sitapur	38,161	33,698	17,850	18,665
Fyzabad	102,318	119,846	79,675	76,328
Rae Bareli	5,907	5,105	217	435
Total	152,907	165,678	98,143	96,286
Grand total	511,679	640,672	141,220	146,549

Condition.—The winter rains failed almost entirely, and the crop on dry, high land suffered much from drought and that on low land from frost. The crop on high, irrigated land was good. Taking all classes of land into consideration, the following figures have been returned by zamindars as the average condition of the present year's crops for the several divisions of the Northwest Provinces and Oudh, 100 representing a full average:

Division.	Linseed.	Rape-seed and lahi.
Meerut	58	58
Rohilkhand and Tarai	67	67
Agra	50	67
Allahabad	67	67
Jhansi	67	67
Benares	75	67
Sitapur	50	42
Lucknow	50	50
Fyzabad	58	58
Rae Bareli	67	67

Outturn.—Adopting the standard of full outturn fixed in previous years and applying them to the condition and area noted in the preceding paragraphs, the total outturn of linseed, rape-seed, and lahi on land in which they were grown as a sole crop amounts to 110,000 and 32,000 tons, respectively. But, as observed in the final forecast of the 1888–'89 crop, the area which oil-seeds in these provinces occupy as a sole crop is extremely small compared with the area on which they are grown mixed with other crops. The area so occupied was carefully registered in two years (1885–'86 and 1886–'87), when special returns were received from patwaris. These returns led to the following conclusions as to the extent to which linseed and rape-seed are sown in any year as mixed crops: Linseed sown mixed, one-half the total acreage under gram and one-sixth of the total acreage under wheat, barley, and their mixtures; rape-seed sown mixed, two-thirds of the total acreage under wheat, barley, and their mixtures. The following formulas were at the same time arrived at for calculating outturn, after taking into consideration the relative irrigated and unirrigated areas of the staple crops with which these oil-seeds are sown, and the different methods of their sowing:

Average outturn per acre.

	Md.[*]	*Srs.*
Linseed sown with gram	1	20
Linseed sown with other crops	0	20
Rape-seed and lahi, with any crop	1	30

To form some idea of what the outturn of linseed and rape-seed as mixed crops is this year the last-given formulas may be applied to the present year's ascertained area of wheat, barley, and their mixtures. This gives the following areas under mixed linseed, rape-seed, and lahi for this year:

	Acres.
Linseed sown with gram	1,825,000
Linseed sown with other crops	2,110,000
Rape-seed and lahi sown with wheat, barley, etc	8,440,000

Applying to these the formulas of outturn stated above, after reducing them to the present year's "condition" reported for these crops, a gross outturn of 80,000 tons of linseed and 320,000 tons of rape-seed and lahi as mixed crops is arrived at. This, added to the outturn of the unmixed crop, gives a total outturn of 190,000 tons of linseed and 352,000 tons of rape-seed and lahi.

Prospects.—The following table shows the prices of linseed and rape-seed at some of the principal marts of the Northwest Provinces and Oudh and at the ports of Calcutta and Bombay. The prices of linseed are moderate, and promise a good business this year. Prices of rape-seed are comparatively high, so much so that from one market only is export to Calcutta with any profit at present possible. The Bombay prices are more profitable, and the present demand for rape-seed gives hopes of a larger business this year than in the past.

Mart.	Price of linseed at 5 per cent. refraction.		Freight and incidental charges to—		Total cost of landing at—			
					Calcutta.		Bombay.	
	Large.	Small.	Calcutta.	Bombay.	Large.	Small.	Large.	Small.
	Rs. A. P.	*Rs. A. P.*	*Rs. A. P.*	*Rs. A. P.*	*Rs. A. P.*	*Rs. A. P.*	*Rs. A. P.*	*Rs. A. P.*
Meerut	....	....	....	....	....	....	....	....
Hathras	....	....	....	....	....	....	....	....
Agra	3 12 11	3 11 6	0 9 10	0 12 0	4 6 9	4 5 4	4 8 11	4 7 6
Farukhabad	3 14 10	3 13 1	0 10 3	0 15 3	4 9 1	4 7 4	4 14 1	4 12 4
Etawah	3 14 7	3 11 11	0 10 7	0 14 5	4 9 2	4 6 6	4 13 0	4 10 4
Chandausi	3 8 7	3 7 0	0 10 1	0 15 8	4 2 8	4 1 1	4 8 3	4 6 8
Shahjahanpur	3 6 6	3 5 4	0 9 8	0 14 6	4 0 2	3 15 0	4 5 0	4 3 10
Lucknow	3 12 10	3 10 0	0 9 6	0 14 5	4 6 4	4 3 6	4 11 3	4 8 5
Fyzabad	3 9 1	3 7 5	0 9 0	0 14 10	4 2 1	4 0 5	4 7 11	4 6 3
Bahraich	3 13 7	3 10 0	0 11 3	1 1 1	4 8 10	4 5 3	4 14 8	4 11 1
Price at the port	....	....	....	....	4 9 0	4 8 0	4 13 3	4 12 2

NOTE.—Rs. A. P. is an abreviation of rupees, annas, and pice. The rupee of 16 annas=32.3 cents; 1 anna =12 pice.

[*] Md. (maund) of 40 srs. (seers) = 74.667 pounds.

Mart.	Price of rape-seed at 4 per cent. refraction.		Freight and incidental charges to—		Total cost of landing at—			
					Calcutta.		Bombay.	
	Yellow.	Brown.	Calcutta.	Bombay.	Yellow.	Brown.	Yellow.	Brown.
	Rs. A. P.	*Rs. A. P.*	*Rs. A. P.*	*Rs. A. P.*	*Rs. A. P.*	*Rs. A. P.*	*Rs. A. P.*	*Rs. A. P.*
Meerut	4 9 0	4 4 0	0 10 4	0 13 2	5 3 4	4 14 4	5 6 2	5 1 2
Hathras	4 14 0	4 9 0	0 9 10	0 12 0	5 7 10	5 2 10	5 10 0	5 5 0
Agra	4 14 0	4 9 11	0 9 10	0 12 0	5 7 10	5 3 9	5 10 0	5 5 11
Farukhabad	4 13 0	4 11 4	0 10 3	0 15 3	5 7 3	5 5 7	5 12 3	5 10 7
Etawah	4 12 5	4 4 8	0 10 7	0 14 5	5 7 0	4 15 3	5 10 10	5 3 1
Chandausi	4 8 2	4 5 11	0 10 1	0 15 8	5 2 3	5 0 0	5 7 10	5 5 7
Shahjahanpur	4 5 2	4 3 4	0 9 8	0 14 6	4 14 10	4 13 0	5 3 8	5 1 10
Lucknow	....	....	....	....	....	....	....	....
Fyzabad	3 14 1	3 11 6	0 9 0	0 14 10	4 7 1	4 4 6	4 12 11	4 10 4
Bahraich	....	3 14 7	0 11 3	1 1 1	....	4 9 10	....	4 15 8
Price at the port	....	....	....	....	4 9 0	4 4 0	5 9 10	5 6 0

Export of the 1888–'89 crop of linseed and rape-seed.—During the nine months, April to December, 1889, figures for which are in the possession of the department, 82,870 tons of linseed and 40,700 tons of rape-seed were exported from these provinces. The exports during the corresponding period of 1888 had amounted to 93,034 tons and 73,122 tons, respectively. The following table shows the export from each division and the quantity taken by the two ports (the decrease in the exports of 1889 was due to the short crop of 1888–'89):

Division.	Linseed.		Rape-seed.	
	1888.	1889.	1888.	1889.
	*Maunds.**	*Maunds.**	*Maunds.**	*Maunds.**
Meerut	15,171	1,31,941	4,57,729	2,26,690
Agra	36,234	59,603	2,14,591	1,79,525
Allahabad	6,26,505	3,71,349	6,84,813	2,13,216
Jhansi	43,253	69,753	646	687
Benares	7,91,763	4,09,407	82,392	72,562
Rohilkhand	2,08,532	5,02,009	2,47,449	1,86,206
Oudh	8,18,381	7,18,295	3,08,608	2,32,229
Total	25,39,839	22,62,357	19,96,228	11,11,115
Export to Calcutta	19,00,141	18,65,687	6,61,411	2,90,089
Export to Bombay	4,35,658	2,42,145	10,12,834	7,28,781

*27.3 maunds =1 ton.

IMPORTS AND EXPORTS OF SPAIN.

REPORT BY CONSUL TURNER, OF CADIZ.

I have the honor to forward herewith a summary of the quantities and values of the principal articles imported into and exported from Spain and the Balearic Isles for the first half of the years 1889 and 1890.

The importations have increased from 342,815,055 pesetas * for first half of 1889 to 364,084,520 for first half of 1890.

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* 1 peseta=19.3 cents.

There has been a falling off in exports, which have decreased from 400,-311,231 pesetas for first half of 1889 to 384,838,451 for first half of 1890.

The increase in the importation of petroleum has been larger than for years, exceeding even the extensive importations of 1887–'88.

The amount of duty collected by the Spanish Government on petroleum alone during the six months ended June 30, 1890, was 11,599,596 pesetas, against 4,196,368 pesetas for the same period of 1889. It is worthy of note that the greater part of this petroleum comes from the United States.

The importation of food supplies increased from 84,030,525 pesetas to 106,229,838 pesetas.

The decrease in exportations is almost entirely confined to food supplies, fruits, oils, etc., for which a partial explanation may be found in the existence of cholera in Spain.

IMPORTS.

Summary of the principal articles imported into Spain and Balearic Isles during the first six months of 1889 and 1890.

Articles.	Quantity.		Value.	
	1889.	1890.	1889.	1890.
Class 1.—Stones, lime, minerals, glassware, and earthenware.				
Marble:			*Pesetas.*	*Pesetas.*
Polished.......kilograms*..	1,213,263	1,960,587	109,194	176,452
All other kinds.......do......	1,722,133	2,430,028	241,097	340,203
Other stones.......do......	28,964,421	37,188,822	1,303,400	1,673,397
Coal.......tons...	680,208	730,138	17,005,200	18,253,450
Coke.......do......	145,403	163,505	3,635,075	4,087,624
Tar, pitch, etc.......kilograms...	14,835,705	19,142,049	1,483,570	1,914,203
Petroleum:				
Raw.......do......	7,313,575	21,195,091	1,755,258	5,086,721
Refined.......do......	1,646,130	1,564,130	427,994	406,661
Other mineral oils:				
Raw.......do......	224,565	891,725	53,896	214,158
Refined.......do......	124,677	230,258	32,416	59,868
Vaseline, etc.......do......	329,161	540,429	78,999	129,703
Benzine and gasoline.......do......	81,011	148,128	21,062	38,513
Minerals.......tons...	4,556	2,343	91,120	46,842
Glassware (common).......kilograms...	2,051,068	2,157,400	615,321	647,221
Crystals and their imitations.......do......	548,029	579,973	931,648	985,953
Window-glass.......do......	1,138,577	1,102,638	910,862	882,111
Mirrors.......do......	35,560	28,930	113,792	92,576
Bricks, tiles, etc.......do......	10,208,275	18,994,932	714,582	1,329,645
Stone-ware.......do......	416,339	433,253	603,693	627,216
Porcelain.......do......	210,378	197,528	525,946	493,818
Total.......	....	....	30,654,124	37,486,335
Class 2.—Metals and their manufactures.				
Iron:				
Cast (ingots).......kilograms...	11,737,802	18,767,149	821,646	1,313,701
Tubes.......do......	3,249,265	4,830,048	487,389	724,508
Manufactured—				
Common.......do......	2,176,157	3,064,631	522,277	735,511
Fine.......do......	671,361	622,670	443,097	410,963
Wrought and steel rails.......do......	14,146,300	21,902,082	2,121,945	3,285,312

* 1 kilogram=2.205 pounds.

Summary of the principal articles imported into Spain and Balearic Isles, etc.—Continued.

Articles.	Quantity.		Value.	
	1889.	1890.	1889.	1890.
Class 2.—Metals and their manufactures—Continued.				
Iron—Continued.				
Sheets—			*Pesetas.*	*Pesetas.*
Above 6 millimeters in thickness.....kilograms...	1,443,250	1,955,021	288,650	391,004
Up to 6 millimeters thick and bars.........do......	9,631,826	10,046,284	2,311,638	2,411,107
In large pieces.........do......	404,784	4,513,924	121,435	1,354,176
Wire.........do......	2,330,780	2,262,392	815,772	791,838
Nails and screws.........do......	2,184,515	2,409,915	1,245,173	1,373,651
Tubes.........do......	1,708,001	1,822,062	529,480	564,838
Wrought and steel manufactures.........do......	4,248,912	4,411,394	3,399,129	3,529,115
Tin:				
Plates.........do......	2,409,387	1,536,568	1,252,881	799,016
Ingots.........do......	224,667	262,017	561,669	655,013
Copper.........do......	57,773	99,291	86,659	148,937
Copper and brass:				
Bars and ingots.........do......	132,482	259,035	271,588	531,022
Sheets, nails, etc.........do......	255,128	553,622	586,794	1,273,330
Tubes.........do......	114,029	146,648	302,175	388,618
Copper, bronze, and brass manufactures.......do......	197,316	184,645	789,264	738,580
Total.........	....	....	16,958,661	21,420,270
Class 3.—Drugs and chemical products.				
Palm-oil.........kilograms...	5,679,081	5,567,601	3,577,822	3,507,589
All other vegetable oils.........do......	373,899	481,981	224,330	289,189
Roots for dyeing and tanning barks.........do......	717,151	1,560,239	137,910	302,873
Oil-seeds.........do......	2,384,060	4,085,154	691,278	1,184,688
Other vegetable products.........do......	1,185,264	794,568	1,481,581	993,210
Indigo and cochineal.........do......	127,358	132,349	1,502,825	1,561,718
Extracts for dyeing.........do......	1,107,936	1,397,517	1,081,239	1,344,843
Varnishes.........do......	163,994	174,344	327,988	348,688
Leads.........do......	829,189	1,000,386	621,881	749,789
Prepared.........do......	252,541	217,264	378,811	325,894
Imitation.........do......	116,253	107,985	1,046,277	971,865
Acids:				
Muriatic.........do......	494,556	840,575	59,347	100,868
Nitric.........do......	25,951	80,313	981,554	41,372
Sulphuric.........do......	171,202	101,362	24,518	15,500
Salts.........do......	317	596	49,600	105,600
Alum.........do......	532,194	514,971	85,150	83,995
Sulphur.........do......	6,087,990	10,858,990	791,397	1,411,668
Carbonate.........do......	10,517,789	10,892,310	2,103,558	2,379,546
Lime.........do......	1,537,640	1,918,608	399,788	498,838
Potassium, soda, etc.........do......	990,127	604,822	99,002	60,481
Salt (common).........do......	274,929	544,674	5,499	8,894
Glue.........do......	380,680	304,883	388,131	321,420
Phosphorus.........do......	25,007	29,102	150,042	174,612
Nitrate of potash.........do......	609,177	767,237	335,212	421,981
Nitrate of soda.........do......	5,891,798	6,961,240	1,767,539	2,088,372
Chemical products.........do......	104,840	126,061	524,200	630,305
Unclassified.........do......	2,407,220	2,528,255	2,407,220	2,528,255
Starch.........do......	953,030	1,104,524	505,105	590,685
Compounded and chemical foods.........do......	4,337,350	6,974,917	1,301,205	2,199,839
Paraffine, stearine (in bulk).........do......	907,169	1,087,141	1,224,678	1,493,368
Candles.........do......	207,229	153,487	341,927	257,658
Perfumery.........do......	69,619	68,955	556,944	551,640
Total.........	....	....	25,173,558	27,515,252

Summary of the principal articles imported into Spain and Balearic Isles, &c.—Continued.

Articles.	Quantity.		Value.	
	1889.	1890.	1889.	1890.
Class 4.—Cotton and its manufactures.				
Cotton:			*Pesetas.*	*Pesetas.*
Raw … kilograms	38,909,475	27,933,109	54,161,434	38,239,998
Thread—				
Up to 35 … do.	91,881	58,034	202,139	127,674
From 36 … do.	47,064	49,839	165,374	174,437
Twisted, of three or more threads … do.	106,946	134,689	755,622	942,403
Textures:				
Up to 25 threads … do.	584,788	642,612	3,018,052	3,319,332
From 26 threads … do.	19,900	22,387	162,300	185,164
Stamped—				
Up to 25 threads … do.	319,699	326,829	2,335,327	2,441,992
From 26 threads … do.	1,255	635	10,752	5,530
Like muslin … do.	53,471	56,492	489,268	520,316
Piques … do.	18,332	20,854	147,308	171,362
Velveret … do.	25,657	24,391	231,065	221,696
Tulles … do.	11,902	14,153	146,996	185,097
Narrow lace … do.	15,063	9,826	421,578	236,304
Knit goods … do.	36,628	19,811	329,872	179,565
Stockings … do.	21,271	28,786	148,897	202,658
Socks … do.	55,335	52,710	442,700	427,418
Total	………	………	63,168,684	47,580,946
Class 5.—Vegetable fibers and their manufactures.				
Hemp (raw) … kilograms	2,515,184	2,697,679	2,188,209	2,347,006
Flax (raw) … do.	26,478	24,666	25,947	26,424
Jute and manila grass (raw) … do.	4,637,785	5,572,136	2,179,758	2,597,739
Hemp or flax yarns … do.	1,915,846	1,852,341	7,761,007	7,272,776
Jute and manila grass yarns … do.	2,032,540	2,551,397	1,524,404	1,842,736
Thread textures:				
Plain (10 threads) … do.	11,419	10,974	45,676	46,221
From 11 to 24 threads … do.	85,179	86,422	1,024,584	1,113,342
From 25 threads upwards … do.	4,361	6,186	91,874	149,223
Figured … do.	30,484	42,488	375,780	433,637
Broad lace … do.	484	360	121,060	90,375
Knit textures … do.	514	235	12,850	6,287
Jute and Spanish grass textures … do.	29,089	55,611	58,198	110,896
Figured … do.	77,490	80,997	387,715	510,361
Total	………	………	15,797,002	16,547,023
Class 6.—Wool, flax, and their manufactures.				
Bristles … kilograms	137,268	97,260	310,279	350,136
Wool:				
Unwashed … do.	232,564	62,504	160,684	150,009
Washed … do.	1,039,676	754,584	3,033,100	3,622,002
Combed … do.	301,255	211,630	1,447,750	1,146,801
Yarn:				
Dirty … do.	4,804	50	15,328	338
Clean … do.	60,504	28,540	334,328	278,264
Dyed … do.	38,707	14,066	291,116	158,242
Carpets … do.	79,584	51,611	169,036	199,490
Felt … do.	50,602	29,816	118,775	106,357
Blankets … do.	4,263	2,113	20,120	16,904
Knit textures … do.	47,478	36,729	409,922	727,244
Woolen cloth … do.	228,150	117,135	2,573,348	2,170,836
Mixed with cotton … do.	64,999	32,955	602,877	354,517

Summary of the principal articles imported into Spain and Balearic Isles, etc.—Continued.

Articles.	Quantity.		Value.	
	1889.	1890.	1889.	1890.
Class 6.—Wool, flax, and their manufactures—Cont'd.				
Other textures:			*Pesetas.*	*Pesetas.*
Pure wool ... kilograms	476,379	216,411	4,967,965	3,633,391
Mixed with cotton ... do	426,728	268,330	2,139,590	2,751,251
Total	...	...	16,594,218	15,665,782
Class 7.—Silk and its manufactures.				
Silk:				
Raw ... kilograms	50,961	57,057	2,038,440	2,282,280
Twisted ... do	1,377	1,041	82,620	62,460
Floss silk:				
Combed ... do	473	470	9,460	9,400
Yarn ... do	6,349	8,197	165,074	213,122
Twisted ... do	10,855	14,172	445,055	581,052
Silk textures ... do	31,382	20,770	3,011,151	2,261,156
Do ... do	7,737	7,460	404,132	392,886
Silk velvet ... do	496	556	71,722	84,120
Silk lace textures ... do	7,220	6,557	976,050	954,802
Knit textures ... do	2,737	3,182	197,100	229,842
Velvet, mixed with cotton ... do	5,987	4,871	323,284	278,613
Other textures:				
Mixed with cotton ... do	55,592	50,196	1,672,425	1,564,487
Mixed with wool ... do	19,874	6,097	385,910	190,898
Total	...	...	9,782,423	9,105,118
Class 8.—Paper and its manufactures.				
Printing-paper ... kilograms	1,811,983	946,292	1,177,789	615,088
Do ... do	371,535	455,398	491,571	614,788
Ruled paper ... do	156,486	153,852	312,972	307,704
Books:				
Printed in Spanish ... do	39,712	46,534	133,036	155,889
Printed in foreign languages ... do	81,794	87,644	245,382	262,932
Maps, etc ... do	42,187	28,228	1,054,675	705,700
Paper ... do	23,366	38,540	116,830	192,700
Brown ... do	672,822	840,605	423,878	529,580
Other kinds ... do	184,229	185,164	368,458	370,328
Unclassified ... do	101,146	122,564	303,438	367,692
Total	...	...	4,628,029	4,122,401
Class 9.—Lumber and its manufactures.				
Staves	...	...	7,390,050	7,634,607
Lumber:				
Deals, etc	...	...	11,979,325	11,202,392
Fine ... kilograms	1,055,639	1,390,049	348,291	458,716
Not specified ... do	76,998	71,136	43,119	39,836
Empty casks ... do	392,511	714,381	169,100	300,039
Manufactured—				
Common ... do	1,071,515	1,182,959	2,143,030	2,365,918
Fine ... do	373,231	412,178	839,770	927,400
Gilded objects ... do	77,639	91,515	434,779	512,485
Spanish grass ... do	4,986,468	2,545,753	851,229	407,320
Paste for paper manufacturing ... do	...	4,181,989	...	669,119
Total	...	...	24,198,693	24,517,832
Class 10.—Animals.				
Geldings ... number	131	66	118,200	59,400
Other horses ... do	2,011	1,021	1,357,425	689,175
Mules ... do	4,806	2,778	1,922,400	1,111,200

Summary of the principal articles imported into Spain and Balearic Isles, etc.—Continued.

Articles.	Quantity.		Value.	
	1889.	1890.	1889.	1890.
Class 10.—Animals—Continued.			*Pesetas.*	*Pesetas.*
Asses........number...	312	354	18,720	21,240
Cattle........do......	6,613	4,624	1,322,600	924,800
Swine........do......	25,864	5,649	2,586,400	564,900
Sheep and goats........do......	13,628	16,613	163,536	199,356
Hides........kilograms...	3,625,078	3,924,864	5,981,378	6,476,006
Patent leather........do......	59,595	41,036	1,071,710	738,648
Other leather (tanned)........do......	90,970	93,441	909,700	934,410
Belts for machinery........do......	27,345	33,349	246,105	300,141
Animal grease........do......	4,666,128	6,735,086	3,499,598	5,031,314
Fertilizers........do......	23,660,262	24,832,863	5,915,066	6,208,216
Total........	....	....	25,112,838	23,218,826
Class 11.—Machinery, carriages, and vessels.				
Machinery:				
Agricultural........kilograms...	468,458	428,737	421,612	385,864
Motory........do......	2,538,175	4,430,818	3,045,810	5,316,983
Copper........do......	109,806	109,763	422,588	422,588
Other kinds........do......	10,024,163	11,841,356	12,730,987	15,038,522
Carriages:				
Four-seated........number...	7	14	28,000	56,000
Two-seated........do......	15	10	42,000	28,000
Two or four wheels........do......	29	45	36,250	56,250
Railway........kilograms...	26,776	460,994	28,918	497,873
Other kinds........do......	583,030	3,174,461	291,516	1,587,131
Carts........do......	1,065,458	831,280	426,183	332,512
Vessels:				
Wooden—				
Up to 50 tons........number...	15	15	40,494	23,297
Do........tons...	156,230	89,727		
From 51 to 300 tons........number...	....	1	....	21,268
Do........tons...	....	82,053		
Over 300 tons........number...	....	2	492,073	329,463
Do........tons...	1,898,430	1,271,075		
Iron and steel........number...	9	12	4,833,440	2,862,571
Do........tons...	14,872,182	8,807,912		
Total........	....	....	22,840,074	26,958,322
Class 12.—Grain and foods.				
Fowls........kilograms...	1,280,835	894,188	2,561,670	1,788,376
Salt meat........do......	158,873	95,622	92,152	55,461
Pork and lard........do......	3,204,019	4,055,672	3,684,623	4,664,023
Other kinds of meat........do......	12,502	13,319	11,877	12,653
Butter........do......	62,437	70,206	231,017	259,763
Fish:				
Cod........do......	20,990,290	21,926,764	13,295,185	13,813,860
Fresh........do......	1,662,073	1,914,259	358,584	421,136
Smoked........do......	58,029	43,789	18,921	24,083
Rice (clean)........do......	3,886,997	1,737,008	1,088,641	486,363
Wheat:				
From United States........do......	729,743	621,510	131,354	111,872
From France........do......	2,736,073	12,625,044	492,493	2,272,507
From Russia........do......	46,293,935	47,615,410	8,332,918	8,570,773
From Turkey........do......	12,024,900	8,409,668	2,164,482	1,523,740
From other countries........do......	9,948,324	2,424,998	1,790,688	436,498
Total........do......	71,732,975	71,696,630	12,911,935	12,915,390

Summary of the principal articles imported into Spain and Balearic Isles, etc.—Continued.

Articles.	Quantity.		Value.	
	1889.	1890.	1889.	1890.
Class 12.—Grain and foods—Continued.				
Corn flour:			*Pesetas.*	*Pesetas.*
From Germany......kilograms	121,888	23,755	36,567	7,126
From Austria......do	220,759	97,220	66,228	29,166
From Belgium......do	704,877	168,012	211,463	50,404
From France......do	12,868,549	13,920,474	3,860,564	4,176,143
From other countries......do	2,112,157	335,376	633,647	100,613
Total......do	16,028,230	14,544,837	4,808,469	4,363,452
All other cereals:				
From France......do	1,061,076	7,414,719	127,329	889,767
From Morocco......do	5,914,299	5,830,175	709,715	699,621
From Roumania......do	1,623,104	435,016	194,772	52,202
From Russia......do	719,164	2,256,977	86,299	270,837
From Turkey......do	1,678,377	657,370	201,405	78,885
From other countries......do	8,653,848	38,426,133	1,038,463	4,611,136
Total......do	19,649,868	55,020,390	2,357,983	6,602,448
Flour of above cereals......do	34,363	74,800	7,903	17,804
Dried vegetables......do	11,897,709	15,845,942	2,855,459	3,803,025
Sugar:				
From Cuba......do	22,461,180	31,774,353	14,599,766	19,453,329
From Porto Rico......do	7,128,887	10,296,825	4,633,776	6,692,936
From Philippine Islands......do	2,373,785	1,822,733	1,542,960	1,184,777
From France......do	84,943	47,291	59,452	33,104
From other countries......do	336,946	323,310	235,862	226,318
Total......do	32,385,741	44,264,512	21,071,016	27,590,464
Caracas cocoa:				
From Venezuela......do	668,102	857,553	1,403,014	1,800,861
From other countries......do	7,341	104,848	15,415	220,181
Total......do	675,443	962,401	1,418,429	2,021,042
Guayaquil cocoa:				
From Cuba......do	420,182	702,631	777,281	1,299,867
From Porto Rico......do	67,576	48,704	125,015	90,103
From Philippine Islands......do	4,921	105	9,103	194
From Ecuador......do	1,786,416	1,591,735	3,572,832	3,183,470
From other countries......do	236,710	564,635	473,420	1,129,270
Total......do	2,515,805	2,907,810	4,957,651	5,702,904
Coffee:				
From Cuba......do	54,420	75,537	111,561	154,861
From Porto Rico......do	1,768,107	2,154,141	3,624,618	4,415,990
From Philippine Islands......do	809,948	1,039,826	1,660,394	2,131,643
From Arabia......do	22,896	....	45,980	....
From Mexico......do	22,792	1,846	47,683	3,876
From other countries......do	26,581	77,606	55,820	162,973
Total......do	2,704,744	3,348,956	5,546,056	6,869,343
Cinnamon......do	146,775	119,824	616,455	503,261
Other kinds......do	24,588	37,380	27,047	41,120
Pepper......do	142,520	128,876	256,536	231,978
Tea......do	57,291	54,370	129,129	122,332

Summary of the principal articles imported into Spain and Balearic Isles, etc.—Continued.

Articles.	Quantity.		Value.	
	1889.	1890.	1889.	1890.
Class 12.—Grain and foods—Continued.				
Spirits:			*Pesetas.*	*Pesetas.*
From Cuba......hectoliters*	2,761	19,050	96,635	665,750
From Porto Rico......do	41	753	1,435	26,355
From Philippine Islands......do	....	1	....	35
From Germany......do	6,459	160,026	258,360	6,401,040
From France......do	1,934	3,194	77,360	123,360
From Sweden......do	9,144	54,810	365,760	2,192,400
From other countries......do	2,561	7,493	102,440	299,720
Total......do	22,900	245,327	901,990	9.708,660
Champagne......do	835	917	417,500	458,500
Other kinds of spirits......do	13,143	6,392	1,971,450	958,800
Meals......kilograms	73,851	72,383	369,255	361,915
Sweets......do	92,296	150,226	276,888	450,678
Soup paste, etc......do	1,476,659	1,453,808	738,330	726,904
Cheese......do	523,787	627,050	1,047,574	1,254,100
Total grain and foods......	....	....	84,030,525	106,229,838
Class 13.—Sundries.				
Ornaments......kilograms	6,033	4,318	301,650	215,900
Amber, bone, etc......do	39,361	65,533	590,415	982,995
Manufactured......do	7,585	6,741	197,125	168,525
Buttons, all kinds......do	163,767	148,312	818,689	741,560
Playing games and toys......do	108,515	82,798	651,090	496,788
Fancy trimming:				
Silk......do	1,772	1,514	88,600	75,500
Wool......do	17,935	12,955	189,350	129,550
Other......do	34,704	31,602	277,632	252,816
Elastic goods......do	54,405	40,761	761,675	582,939
Total......	....	....	3,876,226	3,646,573

*1 hectoliter=26,417 gallons.

EXPORTS.

Summary of the principal articles exported from Spain and Balearic Isles during the first six months of 1889 and 1890.

Articles.	Quantity.		Value.	
	1889.	1890.	1889.	1890.
Class 1.—Minerals, ceramic, etc.			*Pesetas.*	*Pesetas.*
Coal......tons	7,116	12,110	177,900	302,748
Tar, pitch, etc......kilograms	70,396	1,548,859	9,152	201,352
Galena:				
Not containing silver......do	366,493	420,971	95,288	109,453
Containing silver......do	5,007,650	4,101,720	2,704,131	2,214,929
Other minerals of lead......do	429,420	376,224	98,767	86,532
Blende......do	4,696,382	9,030,410	108,017	207,699
Calamine......do	12,721,000	19,636,025	419,793	648,689
Phospholite......do	6,910,064	....	69,100	....
Minerals:				
Antimony......do	180,570	324,685	54,171	97,406
Copper......do	475,022,922	328,180,751	18,638,667	12,475,868

Summary of the principal articles exported from Spain and Balearic Isles, etc.—Continued.

Articles.	Quantity.		Value.	
	1889.	1890.	1889.	1890.
Class 1.—Minerals, ceramic, etc.—Continued.				
Minerals—Continued.			*Pesetas.*	*Pesetas.*
Not specified ....kilograms...	7,658,420	13,974,990	444,189	810,549
Iron........do......	2,656,170,555	3,054,229,330	29,217,876	33,596,523
Sulphuret of iron........do......	43,322,080	86,940,883	433,221	869,409
Manganese........do......	3,337,081	4,520,000	166,854	226,000
Stones (small)........do......	496,762	380,911	149,029	114,004
Tiles painted with colors, etc........do......	148,200	156,466	66,691	70,408
Stone-ware:				
Common........do......	45,473	61,336	36,378	49,068
Fine, and porcelain........do......	7,651	19,102	7,651	19,102
Total........	....	....	52,896,875	52,099,739
Class 2.—Metals and their manufactures.				
Gold:				
Bar and coin........	....	....	84,320	130,510
Jewels and table service........	....	....	24,000	15,500
Silver:				
Bars and coin........	....	....	4,945,809	2,810,354
Jewels and table service........	....	....	88,284	12,908
Jewelers' waste........kilograms...	22,570	6,473	338,550	97,095
Iron (ingots)........do......	37,979,897	47,775,859	3,038,392	3,822,069
Wrought iron and steel bars........do......	125,183	400,203	43,815	140,071
Railway rails (old)........do......	5,045,632	6,934,769	352,794	485,434
Iron goods........do......	2,644,973	546,378	1,454,735	300,508
Copper:				
Sheet........do......	14,771,483	21,281,022	11,817,186	17,560,509
Black and old........do......	1,235,854	9,832	1,853,781	14,748
Bars........do......	1,718	....	3,521	....
Sheets and nails........do......	24,683	31,408	65,410	83,231
Brass sheets........do......	7,437	11,987	17,105	27,571
Copper, brass, and bronze manufactures......do......	180,865	30,012	904,325	150,060
Quicksilver........do......	1,872,229	947,002	10,484,482	5,303,211
Pig lead:				
Containing silver........do......	34,473,383	42,716,297	12,755,152	15,805,030
Not containing silver........do......	30,488,615	27,451,962	10,061,242	9,059,147
Lead:				
In tubes........do......	9,226	5,015	4,152	2,156
Other kinds........do......	311,784	209,162	118,478	79,481
Zinc bars and sheets........do......	698,561	711,753	384,209	391,463
All other metals........do......	24,995	234,136	74,985	702,408
Total........	....	....	58,914,727	56,993,464
Class 3.—Drugs and chemical products.				
Oil:				
Almond........kilograms...	1,492	916	4,624	2,840
Pea-nut and other seed........do......	114,606	75,875	97,415	64,494
Olive lees........do......	394	4,000	150	1,520
Barks for tanning........do......	783,018	1,183,934	156,603	236,787
Pea-nuts........do......	417,572	187,452	162,850	73,105
Licorice:				
Root........do......	1,417,803	1,460,366	425,340	438,110
Paste........do......	250.115	409,450	350,161	573,230
Vegetable products (unclassified)........do......	557,733	333,645	613,507	367,010
Sulphur........do......	23,979	43,847	3,117	5,699
Salt, common........do......	147,778,966	142,261,976	2,216,684	2,133,931
Tartar and lees of wine........do......	2,021,031	2,846,925	4,244,165	5,978,543

Summary of the principal articles exported from Spain and Balearic Isles, etc.—**Continued.**

Articles.	Quantity.		Value.	
	1889.	1890.	1889.	1890.
Class 3.—Drugs and chemical products—Cont'd.			*Pesetas.*	*Pesetas.*
Cream of tartar.......kilograms...	209,571	213,851	544,885	556,012
Soap, common.......do......	2,736,430	3,104,583	1,641,857	1,862,749
Candles.......do......	482,101	615,616	795,467	1,015,767
Perfumery.......do......	25,861	24,809	206,888	198,472
Total.......	....	....	11,463,713	13,508,269
Class 4.—Cotton manufactures.				
Cotton textures:				
White.......kilograms...	1,028,478	1,034,458	5,142,390	5,172,290
Dyed.......do......	381,631	571,816	2,671,417	4,002,712
Knit goods.......do......	273,101	311,737	1,638,606	1,870,422
Total.......	....	....	9,452,413	11,045,424
Class 5.—Vegetable fibers and their manufactures.				
Hemp and flax yarns.......kilograms...	11,989	12,102	29,373	29,649
Rigging.......do......	269,319	254,202	309,717	292,332
Thread textures.......do......	56,058	45,137	336,348	270,822
Printed.......do......	231	280	2,310	2,800
Other vegetable fiber textures.......do......	18,080	8,622	27,120	12,934
Lace.......do......	2,962	2,221	651,640	488,600
Total.......	....	....	1,356,508	1,097,157
Class 6.—Wool and its manufactures.				
Wool:				
Unwashed.......kilograms...	3,556,355	2,579,985	6,406,839	4,643,973
Washed.......do......	18,781	10,340	77,941	42,911
Blankets.......do......	4,597	6,936	36,776	55,488
Knit textures.......do......	2,326	2,411	37,216	38,576
Woolen cloth:				
Pure.......do......	38,664	62,395	811,944	1,310,295
Mixed with cotton.......do......	1,737	6,665	591,797	747,461
Other textures of wool:				
Pure.......do......	56,424	51,549	591,797	747,461
Mixed with cotton.......do......	10,641	19,551	106,410	195,510
Total.......	....	....	8,091,504	7,120,859
Class 7.—Silk and its manufactures.				
Silk:				
Waste.......kilograms...	18,197	20,063	200,167	220,693
Raw.......do......	21,497	11,448	1,031,856	549,504
Textures—				
Plain.......do......	5,455	3,685	518,225	350,075
Figured.......do......	690	561	100,050	81,345
Velvet.......do......	3	155	435	22,475
Silk-worm pods.......do......	5,189	1,500	67,457	19,500
Sewing-machines.......do......	260	207	14,820	11,799
Lace.......do......	58	7	58,000	7,000
Total.......	....	....	1,991,010	1,262,391
Class 8.—Paper and its manufactures.				
Printing-paper.......kilograms...	55,312	629,815	47,016	535,342
Hand-made.......do......	399,472	480,469	679,103	816,798
Letter-paper.......do......	15,508	17,102	23,263	25,654
Not specified.......do......	599,613	624,063	1,798,839	1,872,189
Books and music-paper.......do......	342,584	372,121	1,027,752	1,116,363

Summary of the principal articles exported from Spain and Balearic Isles, etc.—Continued.

Articles.	Quantity.		Value.	
	1889.	1890.	1889.	1890.
Class 8.—Paper and its manufactures—Cont'd.			*Pesetas.*	*Pesetas.*
Engravings .... kilograms	37,317	43,242	932,925	876,275
Packing-paper .... do	360,907	417,798	392,635	192,359
Total	....	....	4,901,533	5,434,980
Class 9.—Lumber and other articles.				
Lumber .... kilograms	11,033,213	16,516,989	882,657	1,321,360
Cork:				
Sheets .... do	1,870,999	1,222,155	898,080	577,036
In small pieces .... do	5,983	5,333	59,830	53,330
For bottles .... do	693,434	783,940	9,708,076	10,975,160
In other forms .... do	152,286	1,572,659	22,843	235,898
Spanish grass .... do	21,587,435	26,140,964	3,885,737	4,705,373
Manufactured .... do	1,239,468	298,426	347,051	83,559
Rags for paper manufacturing .... do	50,840	15,823	17,794	5,539
Total	....	....	15,822,068	17,957,255
Class 10.—Animals and animal products.				
Horses .... number	1,473	2,079	662,850	935,550
Mules .... do	921	869	414,450	390,750
Asses .... do	629	323	44,030	22,610
Cattle .... do	27,830	27,885	9,740,500	9,759,750
Sheep .... do	20,106	6,891	241,272	82,728
Goats .... do	1,313	1,634	15,756	19,608
Swine .... do	1,173	3,773	117,300	377,300
Skins:				
Sheep .... kilograms	538,412	474,380	969,142	719,528
Goat .... do	288,882	347,324	1,083,308	1,302,467
Other .... do	198,761	292,809	318,018	468,495
Sole .... do	26,747	31,753	240,727	286,047
Tanned hides:				
Sole-leather .... do	7,574	6,284	52,318	43,988
Calf-hides (dressed) .... do	9,245	38,225	101,695	420,475
Sheep-skins (dressed) .... do	125,550	151,241	753,300	907,446
Boots and shoes .... do	443,292	488,460	7,092,672	7,815,360
Total	....	....	21,847,334	23,552,102
Class 11.—Machinery.				
Machinery .... kilograms	676,143	272,296	858,702	345,815
Class 12.—Grains and foods.				
Fowl and game .... kilograms	66,139	26,817	132,278	53,634
Fresh meat .... do	3,400	1,829	3,400	1,829
Hams and salt meat .... do	74,243	98,911	118,789	158,257
Bacon and lard .... do	46,435	33,564	81,261	58,738
Butter .... do	323,274	143,017	905,168	400,448
Fish:				
Fresh .... do	397,574	492,349	99,394	123,088
Lobsters and all shell fish .... do	96,349	67,705	144,524	101,558
Sardines .... do	966,181	996,639	463,767	478,286
All other, smoked .... do	266,486	358,524	253,162	435,588
Rice .... do	732,698	3,085,807	329,714	1,388,613
Barley .... do	498,446	48,540	69,783	6,796
Rye .... do	466,706	457,951	74,673	73,270
Indian corn .... do	5,077	9,728	965	1,848
Wheat .... do	62,489	581,283	11,248	104,629
Other cereals .... do	2,031,643	909,762	264,113	118,269
Wheat flour .... do	10,981,172	14,111,333	3,513,974	4,514,615

Summary of the principal articles exported from Spain and Balearic Isles, etc.—Continued.

Articles.	Quantity.		Value.	
	1889.	1890.	1889.	1890.
Class 12.—Grains and foods—Continued.			*Pesetas.*	*Pesetas.*
Chick-pea........kilograms...	1,558,932	2,192,169	857,412	1,206,092
Other dried vegetables........do......	927,894	1,152,331	287,647	357,223
Garlic........do......	1,251,417	1,231,966	901,080	887,016
Onions........do......	4,287,169	2,369,425	628,076	355,413
Beans, fresh........do......	5,945	42,278	1,649	12,683
Potatoes........do......	1,698,688	1,557,087	152,882	140,136
Other vegetables........do......	1,401,105	1,578,951	249,311	236,842
Almonds........do......	424,499	691,760	827,397	913,672
Kernals........do......	665,641	562,189	1,094,194	1,124,378
Olives........do......	1,414,883	2,725,515	758,676	1,907,860
Nuts........do......	2,638,811	1,679,351	1,398,570	890,053
Chestnuts........do......	48,271	211,640	10,619	46,561
Figs, dried........do......	258,273	651,424	72,316	182,417
Walnuts........do......	6,934	8,119	2,358	2,759
Rasins........do......	1,280,329	1,196,304	768,197	717,782
Other dried fruit........do......	60,976	138,123	24,390	55,253
Pomegranates........do......	140	....	28	....
Lemons........do......	554,454	1,523,671	99,801	274,259
Oranges........do	64,364,028	65,390,680	12,872,805	13,078,196
Grapes........do......	2,335	2,589	1,051	1,165
Other fresh fruits........do......	220,149	987,244	52,836	242,513
Anise-seed........do......	243,841	324,768	243,841	324,768
Saffron........do......	12,417	16,377	1,241,700	1,637,700
Cherries........do......	86,675	35,475	104,010	43,021
Capsicums........do......	647,002	645,904	581,302	581,314
Olive oil........do......	18,275,264	8,563,732	16,082,230	7,536,083
Spirits (common)........hectoliters...	2,571	3,716	154,260	222,960
Liquors........do......	2,753	3,917	178,945	254,605
Spirits of wine........do......	985	241	73,875	18,075
Common wine:				
To France........do......	3,955,735	3,609,465	118,672,050	108,283,950
To England........do......	31,007	41,346	930,210	1,240,380
To rest of Europe and Africa........do......	69,405	70,659	2,082,150	2,119,770
To foreign America........do......	246,404	266,939	7,392,120	8,008,170
To Asia and Oceanica........do......	15,578	13,548	467,340	406,440
To Cuba and Porto Rico........do......	426,508	227,071	12,795,240	6,812,130
Total........do......	4,744,639	4,229,028	142,339,110	126,870,840
Sherry:				
To France........do......	29,231	32,160	3,800,030	4,180,800
To England........do......	45,759	53,399	5,949,670	6,941,870
To rest of Europe and Africa........do......	10,406	10,383	1,352,780	1,349,790
To Cuba and Porto Rico........do......	1,822	1,231	236,860	160,030
To foreign America........do......	11,982	13,422	1,557,660	1,744,860
To Asia and Oceanica........do......	428	362	55,640	47,060
Total........do......	99,629	110,957	12,951,640	14,424,410
Other wines:				
To France........do......	16,016	23,925	1,441,440	2,153,250
To England........do......	2,310	3,142	207,900	282,770
To rest of Europe and Africa........do......	10,904	4,390	981,360	395,100
To Cuba and Porto Rico........do......	1,645	515	148,050	46,350
To foreign America........do......	9,913	3,379	892,170	304,110
To Asia and Oceanica........do......	52	59	4,680	5,310
Total........do......	40,840	35,410	3,675,600	3,186,890

Summary of the principal articles exported from Spain and Balearic Isles, etc.—Continued

Articles.	Quantity.		Value.	
	1889.	1890.	1889.	1890.
Class 12.—Grains and foods—Continued.			*Pesetas.*	*Pesetas.*
Carob ....kilograms...	700,917	39,713	84,110	4,766
Canary-seed........do......	551,479	322,893	148,899	87,175
Meals........do......	2,533,502	2,456,820	3,800,253	3,785,229
Sausage........do......	135,405	157,253	677,025	786,265
Chocolate........do......	161,419	136,371	484,257	409,113
Sweets........do......	41,562	27,699	103,906	69,250
Soup paste........do......	686,046	592,882	397,906	343,878
Total grains and foods........do......	....	....	210,850,317	191,238,078
Class 13.—Sundries.				
Fans........kilograms...	23,623	25,624	599,575	,640,600
Acpargate, or hemp shoes........do......	57,431	155,763	689,172	1,869,156
Wax light........do......	8,197	21,074	16,394	42,148
Playing-cards........do......	94,731	105,169	568,386	631,014
Total........	....	....	1,864,527	3,182,918

R. W. TURNER,
Consul.

UNITED STATES CONSULATE,
Cadiz, August 28, 1890.

THE MANCHOORIAN SILK-WORMS.

REPORT BY CONSUL BOWMAN, OF TIEN-TSIN.

In my consular district silk-worms are not raised for profit, and, so far as I can ascertain, no silk is manufactured here. In the province of Shan-Toong, to the south, and Manchooria, to the north and east of this district, the raising of silk-worms and manufacture of silk are active industries engaged in by a great many people.

I inclose herewith a clipping, taken from the China Times, on silk culture in Manchooria, which is very complete and comprehensive.

WM. BOWMAN,
Consul.

UNITED STATES CONSULATE,
Tien-Tsin, June 13, 1890.

OUR MANCHOORIAN SILK-WORMS.

[Inclosure in Consul Bowman's report.]

One can not travel far in the east of Manchooria without being drawn into silk-worm studies. The attention was first arrested by the ceaseless "bang" of the watchman's musket in lovely, remote valleys, suggestive of the sportsman and "big" game. You follow up the sound to stumble upon a crude hut of boughs, the floor of which the care-taker has fitted up, after the

Corean idea, as a "k'ang," so that with a few wisps of straw or the native and abundant brake he may defy the Chinaman's dreaded enemy—damp. Here you find a very commonplace specimen of humanity in charge, it may be, of some ten thousand of the oak-fed worm, the source of our common pongee. In the Jaloo district you may travel for days on end without ever losing sight of this conspicuous green worm, a luscious tidbit to a whole host of feathered enemies, and requiring no end of gunpowder for its protection. You enter the houses in certain districts to find the domestic silk-worm largely cultivated, even stumble upon all manner of cocoons whenever you set practical inquiry afloat; and, I need not add, you hear not a few stories which must be taken with a grain of salt. Thus, I will confess, I have been two years searching for a grub which some say feeds on the elm; is, when full grown, as long as one's middle finger; is of a beautiful white color; disappears mysteriously when about to enter the chrysalis state—goes into the ground at the root of the tree, some say, and there spins a cocoon of such a durable quality that a material made of it is virtually fire-proof. I have searched many elms and have found several living curiosities, but nothing that pertains to silk. Yet the information is given by very sensible people, who believe it on the authority of friends who can vouch for it. When jesting on the subject, I have had my jest returned by another statement, that there is even such a thing as a cocoon which produces water-proof silk. My searchers have heard these stories over a large district. But people agree in saying these creatures are altogether too "ling" or spiritual, or, one might say, their Daimon is altogether too much for mortals to cope with. These stories led, however, to a find which promises to be of some consequence. A searcher brought me some remarkable cocoons from the common pine (*Pinus chinensis*). The worm was not white, and the cocoons were formed quite at the tips of the branches, nestling among the spines, and sometimes strangely interwoven with them. But certainly the fiber of the cocoon is unique, as far as my studies have gone, having a right, I should suppose, to be in the fact that the tree this worm feeds on is unique in its way, in that it sheds not only its leaves, but all its twigs, and stands in winter under bare poles. Nothing, therefore, in the shape of a cocoon could hang on an ailantus throughout the winter, even though this worm is always careful to fix its cocoon by strong silk lines 6 or 8 inches above the point of actual suspension. Shan-See is said to be its original habitat, and the silk from its cocoons sold here is named from a district in that province. But, as I have reared these and made a careful study of their habits, I shall reserve them for a separate paper.

Let me here introduce another variety, which promises to be of some interest as possibly a new species or, perhaps, the original of our domestic silk-worm. It was brought to me from a mulberry (*Morus nigra*) in an old Chinese burying-ground, where the leaves were in constant demand for the rearing of the domestic species. My friend had in the same basket worms and cocoons of the domestic silk-worm, as we have it here—an importation, I believe, from Shan-Toong, and probably degenerated. I was alike struck by the resemblances and the divergencies. It seemed a clear case of wild and tame. Here was the tame creature, evidently made expressly for man, whatever people may say, next to wingless; will lay its eggs with its wondrous gyrating motion just where you place it; has no want which can not be attended to, and is of use to feed the poultry the moment it has secured the increase of its kind. The worm, too, is a model of good behavior. It will accommodate you by eating dandelions, lettuce, and other herbs, if the mulberry leaves are detained by spring frosts. It lies where you place it, and is not known to wander, if it has food—and even then would make a bad traveler. You may leave them open about the house anywhere, and you always know where you have them. Not that they have not their notions. They are exceedingly particular about smells, and insist on cleanliness, even from the Chinese. There is clearly a spirit of intelligence in the creature, which recalls the story that a lovely, homely, filial damsel was changed into a silk-worm to escape a dreadful fate involved by a Jeptha-like vow of her father. But wild is wild when you see it in the other variety. This year the friend mentioned above brought me twenty worms from a distance of some 18 miles. When he opened his wallet only three remained. "There is no doing with these creatures," was his only apology. The remaining three were duly placed on a small mulberry-tree of the same variety as the one from which they were taken. A mild form of stockade was constructed round the tree to break the wind and help to preserve them from the birds. But on the morrow not a sign was visible; they had not even set tooth on leaf. Last year I reared some specimens from the same original in a twelve-year-old mulberry in our own garden. I had them at several stages—after the first, second, and third mute—but the younger fry found the leaves too old for them (and it was a very dry season), and none but those of the second and third mutes went into cocoon. They were very secret in their habits, and I do not remember one of my daily visits in which it did not require several men to find them. One disappeared altogether, and, though the tree was being searched daily for the berries, no trace was found till nearly a month afterwards, when a very perfect cocoon and a large collection of eggs were discovered—at a point which involved an immense amount of travel, even for such a creature. The moth had never been observed. I tried the experiment of rearing them in the house. The youngest leaves were duly shred, as for the domestic silk-worm; but somehow the creatures wandered from day to day, no matter what precautions were taken. They got more restless with each mute, until from forty which had safely passed the first mute I was reduced to four which attained the third stage. To save these I took them to a friend, who had a three-year-old mulberry from my own stock, and, as usual, a day or two after not a trace was to be found. It seems as if the creature had a "de'il" in it, to use an old Scotch saying. The Chinese regard it as too restless to repay the trouble of cultivation.

To describe the worm: It is in every thing an exaggeration of the domestic variety, while, to take worm and cocoon and moth, the two species are clearly akin. There is an exaggeration of the singular dragon-like head, the remarkable eye—but with a look of "de'ilment" in it, the uncanniest looking worm I have yet handled—a rougher, knobbed, knarled looking skin. One of the most differentiating features is the sign of its wildness in the extraordinary adaptation of color to its surroundings. Those who have watched tree-fed silk-worms feeding will have observed how they can hold by their tail prehensiles and stretch their body out in a straight line to catch up the tip of a leaf, so as to eat from the tip backwards, first on the one side of the midriff and then on the other. This happens always in the last stage, and an ailantus worm in this stage is absurdly conspicuous and is, doubtless, preserved from absolute destruction by some to us imperceptible odor. The green, oak-fed worm is simply destroyed wholesale at this stage, if not constantly guarded. Now, this wild mulberry feeder assumes the knobbed, gnarled appearance in its last stage, and when it thus stands out from the branch to feed it is sometimes quite indistinguishable from a broken twig. In its second and third stages it develops bright red spots, but these sober down in the last stage and tone in with the general cinnamon appearance of the mulberry bark. It is clearly highly gifted with the power of self-preservation. I had occasion to place eleven fine oak-fed worms on a small apple-tree right opposite this mulberry. It was supposed they would go into cocoon before morning, and no watch was set. I was awakened at dawn by the din of the magpies, and before I got out seven of the worms were gone, the birds being simply frantic with excitement. But on the mulberry laden with berries, and from which even stoning could not drive the same magpies, I reaped nine cocoons from eleven worms, and the missing ones, doubtless, wandered in the restlessness of the first settlement and died of starvation. This variety has four mutes like the others, and, as far as I have seen, keeps time with domestic species. The first moths appear in the last week of May or the beginning of June, possibly even in the third week of May. The second crop I have had as early as the 3d of July, the domestic moths coming out on the same day. Of nine moths which I secured from this July crop seven were males. The color was brown, with two exceptions—these being a light dun color. One of the females was of this dun color and one male. The sex is distinguished, as in the other varieties, by greater size of body and especially by the breadth of the feathery *antennæ*. The first moth came out on the 3d of July and the last on the 10th. The one female appeared on the 8th and the other on the 9th. They require no attention in the matter of pairing. In laying they preferred the leaf in which the cocoon was wrapped, and did not take to the paper I had provided. They moved about, also, more than the domestic species, distributing their eggs loosely and altogether without the singular attention to order so characteristic of the domestic moth. The eggs were laid on the 9th of July and were hatched by the 19th. In their natural state on the tree the eggs are laid evenly enough, but spread over the under part of the leaf. The moth is a very small variety, as compared with the ailantus or oak or walnut or pine feeders above mentioned. It is just one remove in size from the domestic, the wings, however, being clearly meant for use. The moth does not inherit the restlessness of the worm. Some of the *Attacus pernyi* males (oak) were very troublesome when they had a large room to themselves, and some of the *Attacus cynthia*, as it has been called (ailantus), even smashed themselves and utterly destroyed their wings on the window-glass. But this mulberry feeder remained quietly in its glass case and suffered no injury, though kept for days. The cocoon approaches a bright yellow in color, is about the same size as that of our domestic silk-worm, but more "flossy" in appearance. Have we in this the original of the silk-worm?

HAI-CHENG, *August 21, 1888*.

JOHN MACINTYRE.

THE JERUSALEM-JAFFA RAILWAY.

REPORT BY CONSUL GILLMAN.

I have the honor to present the following report of the work accomplished up to the present date on the Jerusalem and Jaffa Railway:

The work is still prosecuting under the original French company that inaugurated it, but, as yet, has little exceeded the preparatory condition. The company, which is known as Société des Travaux Publics et Constructions à Paris, employs but a small number of workmen, and to an American the work seems to progress at an exceedingly slow rate.

A few workshops have been erected at Jaffa, where, also, a special pier for the landing of the locomotives, which are due at the end of this month, has just been completed. Several cargoes of sleepers, rails, timber, coal, and other materials have lately been received.

Extensive gradings have been commenced at certain points along the projected line, such as at Ramleh, Jesur, Artuf, and other places, and it is expected the work will be more energetically pushed over the entire route on the arrival of the locomotives.

It is calculated that regular trains will be running from Jaffa to Ramleh before the close of this year. Connection between Ramleh and Jerusalem can be made over the present excellent macadamized road by carriage and wagon.

The large number of Americans visiting this country renders the foregoing information of importance to our citizens.

HENRY GILLMAN,
Consul.

UNITED STATES CONSULATE,
Jerusalem, August 14, 1890.

CONSULAR REPORTS

ON

COMMERCE, MANUFACTURES, ETC.

No. 122.—NOVEMBER, 1890.

PRODUCTS AND INDUSTRIES OF NORWAY.

REPORT BY CONSUL GADE, OF CHRISTIANIA.

AGRICULTURE.

The Norwegian farmers had in 1889 another unfavorable harvest, not attributable, as in the two previous years, to a late and cold summer, but to the excessive dryness of the months of May and June, when hardly a drop of rain fell and the hopes raised by an early and beautiful spring were completely disappointed.

The results of the crops may be summed up as follows: Hay a good deal, perhaps 20 or 30 per cent., below an average crop; the grain inferior in quality, as well as in quantity, to average crops. In some southern districts they were a perfect failure, and the farmers scarcely reaped as much grain as they had sowed. By a strange freak of nature the barley crop gave an excellent result in the most northen districts of the country, about 70° north latitude, not far from the North Cape.

The potato crop was exceedingly rich, owing to the abundant rains which fell during the latter part of the summer. Potatoes are therefore very cheap, and will be a welcome substitute for other fodder during the long winter season. They are extensively used by the brandy distilleries, which are giving 34 cents per barrel therefor.

The dairy industry has been more satisfactory, and the pastures on the high mountains, where the cattle are removed from the farms as soon as warm weather sets in, were better than usual. The farmers are beginning to make better use of their milk, and the prices of dairy products seem to be rising. New dairy associations and butter companies were formed in 1889, and the Government continues to encourage the production of cheese. New factories of condensed milk for exportation are building. The price of milk at the factories is generally 2.5 cents per liter.

The exportation of sheep to England, which in 1888 only amounted to 14,000 head, rose in 1889 to 52,500, which brought an average price of $4.28 per head. It is expected that sheep will become a still larger export article from the western districts, which are particularly adapted for sheep raising on account of their mild winters.

The wages of farm hands are still rising, and it is in many districts more difficult every year to find a sufficient number of laborers. On the other hand, farmers are somewhat relieved by the reduced rate of interest on mortgage loans from 5 to 4½ and 4¼ per cent. per annum, and even 4 per cent. will probably soon be the ordinary rate.

FORESTS AND THE LUMBER TRADE.

The forest wealth of Norway has for a long time been steadily declining. The forests owned by the State or communities are estimated to cover an area of 1,000,000 hectares, or 2,500,000 acres. Since 1866 the Government has bought about 37,000 hectares of woodland in different sections of the country, but the aggregate forest land of Norway is supposed to have diminished in an equal ratio during that period by the destruction of private woods. The value of public and communal forests is estimated at $4,000,000, and they occupy only 12½ per cent. of the aggregate forest ground of the country, which may be computed at nearly 8,000,000 hectares, or 20,000,000 acres. In Sweden the public forests amount to 16 per cent.; in Bavaria, 51 per cent.; in Baden, 70 per cent.; in Prussia, 68 per cent.; and in France, to 35½ per cent., of the total forest land.

A royal commission was appointed in 1874 to examine the condition of private forests and the general wood supply of the country, and their report was quite alarming. It was estimated that the five southern "stifts," or provinces, of Norway, which together embrace about 17,000,000 acres, consumed in 1875 401,000,000 cubic feet of wood, while the reproduction did not exceed 293,000,000 cubic feet, which gave a year's deficit of 108,000,000 cubic feet. Forty years earlier forest statistics recorded a fair surplus of production over consumption, and in 1855 there was nearly a balance. The committee stated that the yearly loss, already so large, must increase for every year, and the Government has no longer any means to arrest the destruction of the forests. Extensive purchases of private forests by the Government were recommended, although the committee did not expect great results from the adoption of this measure alone. The spread of knowledge on rational forestry can have but a limited influence, although the Government has now established a few forest schools in different parts of the country. The only means of protection now left would be a law restricting the disposal of forest property by the private owners and forbidding the destruction of young forest trees. Such a law already exists in France, Italy, Germany, and Switzerland, and, to a certain extent, in Sweden. Its adoption here was, in fact, proposed in 1882 by the Government, but since then no further steps were taken in the matter, public sentiment being much opposed to the restrictions projected. The legislature finally took the matter in hand last year, and there are now many who urge immediate adoption of measures for preserving at least a part of the forests, which still form an important factor of the national wealth and the principal resource of a large tract of the country. The forests have lately suffered the loss of many young trees of small dimensions, cut down either for exportation or for pulp manufacture at domestic mills. The so-called cellulose wood, prepared from small trees and cut very short to escape the export duty on wood, is at present in great demand in foreign markets.

The lumber trade of last year gave general satisfaction, the prices being fair throughout the year, and the quantities exported, which were estimated at 2,021,272 cubic meters, being 5 per cent. in excess of that exported in 1888. The total export of wood of all kinds reached a value of 38,000,000 kroners ($10,180,000), showing an increase of 6,000,000 kroners over that of 1888. The production of lumber had not for many years been so large as in 1889. Sawed lumber was in less demand in foreign markets, but the prices were higher, especially of fir plank. The pine plank brought smaller prices, owing to the competition of Russia. Some shipments of this article to Brazil sold, however, very advantageously. The exportation of planed timber shows in 1889 an increase of 5 per cent., chiefly to England and at good prices. The London market had been very unsteady on account of the great strikes, and it finally became overstocked with planed timber, principally from Sweden, which, from being lately a small exporter, has risen to ship 50 per cent. more than Norway to London.

Australia had in 1889 declined by a third from 1888, but the Cape of Good Hope and Port Natal had in the meantime doubled their consumption of the Norwegian article, sold at good prices. As above said, it is a matter of regret that such large quantities of shore lumber under 19 decimeters in length should lately have been exported to foreign pulp mills, but it is expected that the Storthing, now in session, will soon put an end to the present loss, not only to the treasury, but also to the native pulp industries.

Great Britain now takes about two-thirds of the exports of Norwegian wood, viz, nearly 1,200,000 cubic feet per annum, and she will probably prove a good customer also this year, as the general trade is in a sound condition there. France and Germany, too, promise well for 1890; but Belgium, which ranks third among importers of Norwegian wood, will hardly come up to her usual mark on account of the frequent labor disturbances in that country.

SHIPPING.

The prospects of the large sailing fleet of Norway, engaged in the carrying trade in every harbor in the world, were unpromising a few years since. Discouraged by the constant decline in the rates of freight, many ship-owners had sold their sailing vessels far below their value, in order to get rid of property which they believed would soon be useless. Towards the end of 1888 a new period of activity in commerce began to dawn, and in 1889 the returns were better than any previous year of the last decade. Norwegians again began to buy sailing vessels everywhere and at high prices, and about 220 vessels of foreign origin, representing an aggregate of 132,000 tons, were in 1889 added to the mercantile marine of the country. The port of Christiania was the largest purchaser of foreign vessels, adding about 40 ships of 30,000 tons to her fleet. England alone contributed 60 per cent. of this increase and Germany about 20 per cent. It is not many years ago since ship-building was one of the most important branches of Norwegian industry, occupying in 1875 5,740 men in 200 dock-yards. In 1885 this had fallen to 79 yards with 1,846 men, and last year only 13 sailing vessels of 100 tons and more, measuring together 5,180 tons, besides 45 smaller craft under 100 tons burden, were built in native yards.

After passing through a dull period of five years, from 1883 to 1888, the Norwegian steamers also had in 1889 their full share of the returning prosperity, yielding a large profit, which, in some cases, was estimated as high as from 50 to 70 per cent. of the capital invested. Many new steamers were therefore added to the merchant marine, viz, 64 steamers of 40,000 aggregate tonnage 21 of which of 4,616 tons were built in Norway and 43 of 35,400 tons bought abroad. The steam tonnage of the port of Christiania had an addition of 16 steamers of 9,455 tons and Bergen of 15 steamers of 16,000 tons. The latter port is recorded to have cleared a profit of 4,000,000 kroners on her steamers from the spring of 1888 to the fall of 1889, and to have ordered in 1889, chiefly in England, 33 new steamers representing a tonnage of 37,000 gross registered tons and a capital of 10,400,000 kroners ($3,750,000).

If we take the total tonnage of Norway's commercial marine and sailing vessels, she now ranks third among maritime nations, but only seventh as regards her steam tonnage. The Norwegian aggregate tonnage (1,630,004 tons) is about 6 per cent. of the total tonnage of the world (calculated at 26,459,326 tons) and 22½ per cent. of the British tonnage. It is six times larger than that of Denmark and three times larger than the Swedish. Its gross profits are estimated at $24.12 to $26.80 per annum to each ton, or about $40,000,000 every year.

FISHERIES.

The whale fishery was in 1889 carried on, as usual, on the coast of Finmark with 32 vessels, all of which were steamers belonging to several ports within this district, and yielded 496 whales producing 15,800 barrels of oil, as compared with 696 whales and 21,800 barrels in the previous year. The decline of last year was probably attributable to the unfavorable weather, and, although the price of whale oil has risen from £17 to £20 per ton, the total gross value of these fisheries did not exceed $214,000 and resulted in a clear loss to many outfitters. Some Norwegian whalers went to Iceland and caught many whales there.

The sealing fleet of 1889 numbered 25 steamers of 6,343 tons, with 1,178 men, carrying home 71,304 seal-skins, 12,548 barrels of oil, 36 polar bears, 267 walruses, 24 musk-oxes (the latter killed in East Greenland, farther north than any other vessel had ventured before), besides 413 bottle-noses yielding 4,070 barrels of oil. This catch, much inferior to that of the previous year, was estimated at a gross value of $250,000, yielding, probably, a net profit of only $5,360 to the owners of the vessels.

The bottle-nose fisheries, carried on with 28 vessels, were, on the other hand, more successful and resulted in 1,314 whales. The net profit was valued at $40,000.

The mackerel fisheries, which are chiefly carried on within this consular district, were unsatisfactory in 1889, but the price was nearly double that in 1888, owing to the small quantity caught and the increasing exportation to the United States.

The Norwegian Storthing, in addition to other measures for promoting the fisheries, appropriated 200,000 kroners as loans to fishermen for purchases of strong and modern fishing-smacks. At an auction held in London last month 14 English fishing-smacks were bought for Norwegian account.

INDUSTRIES.

From fifty to sixty tobacco manufactories are at present working. The consumption of tobacco, which is 0.7 kilogram to each individual, is smaller than in most European countries, and has decreased much since ten or twelve years ago, when the import duty on this article was first raised.

The horseshoe nail factories exported in 1889 nails for $660,000. The other nail factories were also busy, but realized a small profit on account of the high prices of iron and coke.

Norway has forty-six beer breweries, which were last year profitably engaged, exporting about 12,856 hectoliters of ale.

The ice industry was very lively, the exportation amounting to 290,000 registered tons. The profit was satisfactory to the exporters and the quantities sold larger than for many previous years.

The silver mines of Kongsberg, belonging to the Government, produced in 1889 5,800 kilograms of fine silver, which, owing to the reduced price of silver, did not cover the expenses of working. The Government, however, has gradually put aside a fund of more than 1,000,000 kroners resulting from the profit of favorable years, and the interest of this is now used to cover the deficit of the mining.

Norway is wealthier in nickel ores than any other European country, but only two mines are now working, producing from 100 to 130 tons per annum. The price of the metal, which in 1875 was 20 kroners per kilogram, has now fallen to 4 kroners per kilogram.

Notwithstanding the depression in the wood-pulp business, new mills are still building in this country, and the exportation of pulp shows a steady increase. At present the Norwegian mills number fifty-four, and the production will probably soon exceed the demand. The exportation of mechanical pulp rose in 1889 to 200,000 tons from 100,000 tons in 1885, while that of chemical pulp was estimated at 35,000 tons, against 24,000 tons in 1888. The prices of the latter article, which was produced at fifteen mills, eleven of which were for sulphit pulp and four for sulphate cellulose, were considered remunerative, notwithstanding the increasing price of the raw materials. The aggregate value of pulp exported in 1889 was estimated at $3,210,000. America is still a heavy importer of Norwegian pulp, chiefly shipped by the direct Thingvalia line to New York. The exportation of pulp from this district to the ports of New York, Boston, and San Francisco amounted, according to the declared exports, in 1889 to 17,872 tons, most of which was chemical pulp, against 17,954 tons in 1888.

RAILROADS.

The Norwegian railroad lines, which have a length of 1,562 kilometers, 1,494 kilometers of which are Government roads, did not in 1889 receive any further extension, but many new lines are now in contemplation. The English company which some years ago obtained from the Government a concession to construct a line from the sea-coast on the Atlantic at Ofoten, in Norrland, to the Swedish frontier, thence to be continued through the mining and forest tracts of Swedish Norrland to the Bothnian gulf, has now stopped work for want of means. The revenues of the Norwegian railroads showed in 1889 an increase of 11 per cent. over that of 1888 and 20 per cent. over that of 1887, a progress chiefly due to the increasing development of several industries in the country districts. The passenger traffic, too, shows a considerable increase. The first line built in this country, about thirty years ago, connecting this city with the lake of Mjösen, is still partly owned by British capitalists, and paid last year a dividend of 7½ per cent. to the preference share-holders and 6½ per cent. to the ordinary share-holders.

FINANCES.

The national debt of Norway consists of the following: A 4 per cent. loan of 1880, 19,850,000 kroners; a 3½ per cent. loan of 1886, 30,826,666 kroners; a 3 per cent. loan of 1888, 64,434,624 kroners; rest of unredeemable bonds bearing from 3 to 5 per cent. interest, 245,472 kroners; total, 115,357,458 kroners ($30,806,000).

The annual outlays for interest and partial payments of the public debt amount now to $1,158,000. In order to relieve the treasury of this burden, the Storthing now contemplates the conversion of the 3½ per cent. loan of 1880 to a new loan bearing 3 per cent. interest, by which a saving of about 100,000 kroners would be effected. As the Norwegian credit is excellent in the foreign money markets and the former loans were contracted only for railroad building or for the conversion of other loans, the Government will doubtless obtain the most favorable conditions. The first loan which Norway made since she regained her national independence in 1814 was contracted in 1820, amounting to nearly $1,000,000 at an emission rate of 61⅗ per cent. of the nominal sum. The effective interest of the loan of 1878 was 5.01 per cent.; of 1880, 4.27 per cent.; of 1886, 3.71 per cent.; of

1888, 3.50 per cent. Bonds of the latter loan (3 per cent.) were lately quoted in Paris at 91 per cent. and those of the 3½ per cent. loan at par.

EMIGRATION.

The emigration over the port of Christiania in 1889 was reported as follows:

Description.	Male.	Female.
Adults	3,790	2,914
Children	659	[illegible]
Total	4,449	3,561

Of these 7,985 went to the United States, 11 to South America, 13 to Australia, and 1 to Asia. Eight hundred and fifteen emigrants belonged to this city and 4,807 to other places in this country, while 1,663 came from Sweden and 711 were Scandinavian-Americans who had been visiting their native land. The emigrants were reported carrying with them 52,600 kroners in money; 4,148 had their passage prepaid in America, and their aggregate passage money amounted to 635,847 kroners.

TOURISTS.

The number of tourists visiting Norway in the summer of 1889 was estimated at about twenty thousand, most of whom were Englishmen, with a fair sprinkling, however, of Germans and Americans. A German line of steam-ships, leaving from Hamburg, will next summer compete with Norwegian and British steamers in forwarding travelers to the North Cape.

GERHARD GADE,
Consul.

UNITED STATES CONSULATE,
Christiania, Norway, 1890.

HOUSE INDUSTRY IN GERMANY.*

REPORT BY COMMERCIAL AGENT SMITH, OF MAYENCE.

WHAT IS HOUSE INDUSTRY?

One of the marked features of industrial life in Germany is the making of articles in what is known as house industry, in which species of work many thousands of people—men, women, and children—are engaged. This house industry, as understood by me, is the making of different articles at home, frequently in out-of-the-way places and villages, oftentimes in mountainous regions, where the people are poor and get a precarious livelihood from the soil. The work is generally done by hand; but the use of simple machinery does not take it out of the category of house industry, so long as it does not assume the form of regular factory work. The work may be done alone or with the aid of one's family, and even hired labor may be used, provided the employer works in the double capacity of worker for another and an employer of workmen.

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* Based on a publication of the German Society for Social Politics.

The chief characteristics of house industry are (1) that it should be carried on at one's home, and (2) that the things made should be for an intermediary, or middle-man. So soon as the consumer is directly worked for, the character of house industry is lost. In house industry a trader or manufact[illegible] must therefore be worked for, or a distant market sought out by the worker, to which he may travel himself; but, as a rule, the work is done for a middle-man. This definition I have constructed from a number of German definitions on the subject, but the meaning of the term is not yet fixed with strict exactness.

The workers in house industry provide their own raw materials, or these materials are furnished by the tradesmen and manufacturers for whom the work is performed; both are customary. The articles or merchandise made may be executed on orders or made up with a view to the sale of them to the first dealer who comes along. Sometimes the makers of them make excursions to distant parts to dispose of them. This was the old practice, now not much in vogue, I believe.

The first and only official enumeration of all the people engaged in house industry in Germany was made in 1882, when it appeared that there were about three hundred and fifty thousand so employed. But it is possible that many a manual workman doing work on order erroneously reported himself as engaged in house industry, and thus became improperly reckoned among the workers in this species of labor; but it is thought that the result of the census was not materially affected thereby, though the Government statistics are alleged by some to be incomplete on this account. The meaning of the term house industry, as said above, is not yet fixed with strict exactness; but the Government, in taking its statistics, narrowed the term down to mean persons working at home, in a small way, on account for some merchant or manufacturer. The Government statistics, therefore, if they do err, err, it is said, in putting the number of workers in house industry at too small a figure rather than in exaggerating their number, for the rule followed by the census takers in making the enumeration of the number of people at work in house industry was to ask each person whether he worked in his own house for an outside business and ask each employer how many persons were employed by him in house industry, and to class all working at home for an outside business as at work in house industry. Small workshops working up their own materials for sale to an outside business were excluded from the enumeration as not coming within the meaning of the term house industry as fixed by the Government.

DISTRIBUTION OF HOUSE INDUSTRY.

The house industry in Germany is carried on chiefly in that part of the Empire which extends from the basin of the Glatzer Mountains along the Bohemian frontier to the Fichtel-Gebirge and thence northwards to the Eichsfeld, taking in Liegnitz, Breslau, Bautzen, Dresden, Leipsic, Zwickau, Upper Franconia, and the Thuringian states, as well as the Prussian district of Erfurt. In addition, a few large house industrial districts are met with on the western frontier of the Empire, such as those of Düsseldorf, Aix-la-Chapelle, Lower Alsace, and Lorraine, as well as in the Black Forest. In the cities of Berlin* and Bremen a great deal of house industry is also carried on. These sections of country are all thickly populated and show a great subdivision of farm land. In the districts of Bautzen, Liegnitz, and Breslau it is mostly the making of linen and cotton goods that occupies the people; in the districts of Zwickau and Leipsic and in the two Reusses and in Saxe-Weimar it is the making of hosiery and of cotton and woolen goods; in the district of Erfurt and in Schaumburg-Lippe it is the linen industry that mostly prevails; in a part of Thuringia it is the making of toys. The house industry on the lower Rhine, as at Düsseldorf and Aix-la-Chapelle, is chiefly devoted to the making of silk goods and small iron ware, such as tools, scythes, and cutlery. In Lorraine and Lower Alsace the people are mostly engaged upon wicker-work, crocheting, and embroidering; to some extent, also, in weaving cotton cloth. In the Black Forest it is especially shoe making that is met with, in Berlin the making of wearing apparel, and in Bremen the making of cigars.

In all Germany there are said to be 10.5 persons engaged in house industry to every 1,000 inabitants. The Kingdom of Saxony is where they are mostly met with. The rate per 1,000 inhabitants, where house industry is carried on, of workers in house industry is as follows, in the different parts of the Empire, namely:

Parts of Empire.	Rate per 1,000 inhabitants.	Parts of Empire.	Rate per 1,000 inhabitants.
Zwickau	80.1	Saxe-Weimar	17.4
Bautzen	72.5	Liegnitz	17.2
Düsseldorf	45.1	Schwarzburg-Sondershausen	17
Reuss (elder line)	31.6	Aix-la-Chapelle	16.3
Berlin	29.6	Lorraine	14.3
Upper Franconia	22.9	Saxe-Coburg-Gotha	13.7
Erfurt	22.8	Black Forest	13.6
Breslau	19.3	Lower Alsace	12.5
Saxe-Meiningen	19	Schaumburg-Lippe	12.4
Reuss (younger line)	18.9	Dresden	10.8
Leipsic	18.1	Bremen	10.6
Schwarzburg-Rudolstadt	17.4		

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* A report on the house industry of Berlin was published in No. 118.

In the different provinces and states of the Empire the number of workers in house industry to every 1,000 factory workmen and artisans, that is, hands employed in closed establishments and workshops, was as follows:

Where employed.	Rate per 1,000 workmen.	Where employed.	Rate per 1,000 workmen.
Province of—		Grand duchy of—	
East Prussia	51.5	Baden	28.9
West Prussia	38.3	Hesse	21.2
Brandenburg, with Berlin	65.9	Mecklenburg-Schwerin	15.6
Pomerania	39.5	Saxe-Weimar	139.7
Posen	43.4	Mecklenburg-Strelitz	41.9
Silesia	90.6	Oldenburg	52.5
Saxony	45.8	Duchy of—	
Hanover	16.8	Brunswick	12.3
Westphalia	28.7	Saxe-Meiningen	102.3
Hesse-Nassau	23.5	Saxe-Altenburg	63.2
Rhineland	104.5	Saxe-Coburg-Gotha	76.7
Kingdom of Prussia	63.3	Anhalt	26
District of—		Principality of—	
Upper Bavaria	21.1	Schwarzburg-Sonderhausen	158.4
Lower Bavaria	8.3	Schwarzburg-Rudolstadt	138.5
The Palatinate	42.7	Waldeck	47.3
The Upper Palatinate	8.3	Reuss (elder line)	147.1
Upper Franconia	206.9	Reuss (younger line)	98.6
Middle Franconia	31.1	Schaumburg-Lippe	75.8
Lower Franconia	4.1	Lippe	62.7
Suabia	22.4	City of—	
Kingdom of Bavaria	42.4	Lübeck	20.3
District of—		Bremen	66.2
Dresden	80.6	Hamburg	34.6
Leipsic	123.9	Alsace	16.1
Zwickau	393.9	Lorraine	142.1
Bautzen	452.7		
Kingdom of—		Average for whole Empire	82.9
Saxony	263.8		
Würtemburg	70.7		

In places of 100,000 inhabitants the average was 78.3 per 1,000; in places of 20,000 to 100,000 inhabitants, 59.6; in places of 5,000 to 20,000 inhabitants, 80.3; in places of 2,000 to 5,000 inhabitants, 102.1; in places with less than 2,000 inhabitants it was 86.9.

The cities with over 100,000 inhabitants show a greater proportion of persons engaged in house industry than does the Empire at large. In them the rate is 17.6 persons engaged in house industry in every 1,000 inhabitants, while in the Empire at large there are only 10.5 in every 1,000. The cities in which this sort of work is principally carried on are Berlin, Breslau, Dresden, Leipsic, Cologne, Stuttgart, Bremen, and Dantzic.

There are thirty branches of industry, in each of which more than 10 per cent. of all the workers in it are engaged in house industry.

Table showing proportion of house workers to whole number of workers.

Branch of industry.	Number of workers in the industry.	Number working at home.	Percentage of the house workers to entire number of workers.
Silk weaving, including velvet making	76,264	53,135	69.7
Crocheting and embroidering	10,327	6,434	62.3
Finishing off of hosiery and knit goods	7,936	4,695	59.2
Making hosiery	73,829	40,100	54.3
Silk and silk shoddy spinning	9,408	4,722	50.2
Lace making	31,004	14,628	47.2
Washing, bleaching, etc., of lace and white linen embroidery	781	347	44.4
Cotton weaving	125,591	52,162	41.5
Making suspenders, cravats, and gloves	22,196	9,056	40.8
Linen weaving	103,808	40,925	39.4
Reeling silk	1,074	422	39.3
Making lace and white linen embroidery	25,639	8,744	34.2
Cork cutting	2,559	800	31.3
Weaving mixed and other goods	73,750	22,051	29.9
Spinning, where kind of stuff is not named	630	177	28.1
Making carton pièrre and papier-maché	5,394	1,508	28
Weaving and plaiting wood, straw, bast, and rushes	18,650	4,976	26.7
Drawing gold and silver wire and making conic goods	3,602	938	26
Corset making	5,914	1,444	24.4
Weaving, where kind of stuff is not named	2,326	513	22.1
Wool weaving	108,007	23,603	21.9
Making tools, scythes, cutlery, and iron ware	55,889	11,719	21
Glass blowing before a lamp	2,078	405	19.5
Sewing	268,337	49,828	18.6
Plaiting and weaving of rubber and hair	2,792	452	16.2
Making "ready-made" clothing and linen	37,614	6,035	16
Making musical instruments, exclusive of pianos	11,165	1,735	15.5
Gun making	5,972	749	12.5
Tailoring	317,896	39,325	12.4
Hackling and spinning flax and hemp	25,095	2,749	11

While in no one of the remaining branches of industry 10 per cent. of the whole number of people employed work in house industry, several have quite a number of workers in house industry, as shoe making, for instance, which has 18,453 people at work in house industry; tobacco working, 8,313; cotton spinning, 4,937; cabinet making and making of parquet flooring, 3,995; and wood turning and carving, 3,148; and, had the statistics of the Empire been further specialized, they would show several branches of work to be almost entirely, or largely, of a house industrial character, such as agate cutting, toy making, porcelain painting, etc.

The figures given show the largest number of persons employed in house industry to be in the following branches of industry: (1) Silk and velvet weaving, (2) cotton spinning, (3) sewing, (4) linen weaving, (5) hosiery making, (6) making of wearing apparel, (7) wool weaving, (8) weaving of mixed goods—each of which has more than 20,000 workers.

Factors which largely influence house work are, (1) whether women can be employed on it; (2) whether few and inexpensive tools and machines can be used, such as sewing and embroidery machines, etc., and small motors;

(3) artistic taste or especial aptitude for the work, as in the making of musical instruments and certain kinds of woven goods; and (4) ease with which the finished products can be transported from the workers into the hands of the employers, and from them into the hands of the consumers.

A large number of women are employed in house industry. In every 100 persons engaged in house industry 43.9 are females, while of every 100 persons engaged in all industry but 20 are females. In house industrial work requiring strength 90 per cent. of the workers are men, while in the lighter employments 90 per cent. of the workers are females.

In general industry 59 per cent. of the workers are unmarried, 38.6 per cent. married, and 2.4 per cent. those who have lost their married partners; while in house industry 40 per cent. of the workers are unmarried, 47 per cent. married, and 13 per cent. those who have lost their married partners.

The relative ages of the workers in house industry compared to the workers in general industry are as follows, on the average, in every 1,000 workers:

Age.	House industry.	General industry.
Under 15 years of age	13.1	33.8
From 15 to 20 years	106	250.3
From 20 to 40 years	456.8	515.4
From 40 to 60 years	312.5	171.6
60 years and upwards	111.6	29.9

Percentage of house workers in every 1,000 workers, according to age.

Branch of industry.	Under 15 years.	15 to 20 years.	20 to 40 years.	40 to 60 years.	60 years and older.
Making porcelain goods	11.5	77.7	517.3	301.4	92.1
Making tacks, nails, etc	....	102.8	520.9	309.4	66.9
Making scythes, cutlery, etc	0.5	44.5	526.6	361.2	67.2
Making musical instruments	23.4	170.8	480.1	272.1	53.6
Spinning, hackling, etc	20.2	78.5	243.6	338.3	319.4
Weaving, including ribbon weaving	5.6	55.2	396.5	395.6	147.1
Rubber and hair plaiting and weaving	16.8	154.3	396	312.1	120.8
Knitting and doing common weaving	11.9	79.2	371.5	370.8	166.5
Crocheting, embroidering, and lace making	41.4	202.6	390.8	234	131.2
Bleaching, dyeing, etc	64.8	233.2	421.9	212.9	67.2
Making passementerie	73.1	262.4	411.1	195.5	57.9
Making common smooth wooden ware	15.8	78.6	426.9	357.2	121.4
Making furniture and parquet flooring	....	16.4	558.8	331.7	93.1
Making baskets	12.1	142.8	491.6	278.1	75.4
Weaving and plaiting in wood, straw, bast, and rushes	43.5	217.1	486.6	192.3	60.5
In turnery, also at cork cutting	6.3	46.5	515.4	349.5	82.3
Working in tobacco	3	28.2	622	318.8	28
Sewing	4.5	160	541.8	228.4	65.3
Tailoring	2	98.6	619	243.1	37.3
Making ready-made clothing	24.9	192.8	529	208.8	44.5
Making millinery	12.4	180.9	616	160.9	29.8
Making hats and caps	6.8	80.3	516.4	319.1	77.4
Making suspenders, etc	25.4	241.3	559.1	147.9	26.3
Making shoes	1.2	71.1	671.1	212.2	44.4
Laundrying	1.3	65.6	460.1	376.9	96.1

Percentage of house workers in every 1,000 workers, according to age and sex.

Branch of industry.	Males.			Females.		
	Under 15 years.	15 to 20 years.	60 years and older.	Under 15 years.	15 to 20 years.	60 years and older.
Making porcelain goods	2.6	46.3	113.7	35	160.8	35
Making tacks, nails, etc	....	102.9	66.2	....	2	2
Making scythes, cutlery, etc	0.6	38.2	65.9	....	190.8	98.3
Making musical instruments	17.2	123.1	56.8	51.7	392.7	38.7
Spinning, hackling, etc	46.1	83.5	443	16.4	77.7	301.4
Weaving, including ribbon weaving	3.3	37.5	145.9	14.3	120.9	151.1
Rubber and hair plaiting and weaving	51.5	51.5	123.6	....	204	119.4
Knitting and doing common weaving	5.3	36.3	156.1	27.6	180.7	191.2
Crocheting, embroidering, and lace making.	63.1	113.6	86	40	20.9	134.3
Bleaching, dyeing, etc	87.2	93.3	103.4	63.3	242.4	64.8
Making passementerie	58.7	95.4	138.3	77.1	308.1	35.9
Making common smooth wooden ware	12.5	64.7	129.4	24.1	113.2	101.1
Making furniture and parquet flooring	....	16	93.3	....	28.6	8.6
Making baskets	9	10	81.8	22.2	284	54.4
Weaving and plaiting in wood, straw, bast, and rushes	96.3	309.2	51.8	36.9	205.8	60.2
In turnery, also at cork cutting	3.8	40.7	77.5	25.2	92.4	120.4
Working in tobacco	2	21.3	26.6	5.4	44.8	31.5
Sewing	....	....	....	4.5	160	65.3
Tailoring	0.2	14.1	54.5	3.8	180	21.6
Making ready-made clothing	21.3	124.8	21.3	25.5	202.7	47.9
Making millinery	12.6	38	76	12.3	185.9	29.2
Making hats and caps	....	25.8	75.6	15.5	150.5	79.6
Making suspenders, etc	....	51.8	69.6	28.2	262.7	21.4
Making shoes	0.2	61.8	43.4	14.6	199.6	56.4
Laundrying	....	....	231.8	1.4	66.2	95.5

Percentage of workers in general industry in every 1,000 workers, according to age.

Branch of industry.	Under 15 years.	15 to 20 years.	20 to 40 years.	40 to 60 years.	60 years and older.
Making porcelain goods	53.5	286.2	461.8	174.1	24.4
Making tacks, nails, etc	37.6	249	489.4	194.1	29.9
Making scythes, cutlery, etc	48.9	301	483.6	142.7	23.8
Making musical instruments	54.8	273.2	494.5	153.8	23.7
Spinning, hackling, etc.	66.2	314.7	428.9	158.3	31.9
Weaving, including ribbon weaving	40.8	273.5	486.2	165.5	34
Rubber and hair plaiting and weaving	18.2	200.2	489	254.9	37.7
Knitting and doing common weaving	75.8	410.7	408	85.7	19.8
Crocheting, embroidering, and lace making	109.7	358.6	430.9	90.1	10.6
Bleaching, dyeing, etc	27.8	225.7	492.9	209.5	44.1
Making passementerie	47.9	319.1	475.2	135.9	21.9
Making common smooth wooden ware	36.5	275.1	508.1	147	33.3
Making furniture and parquet flooring	35.9	288.7	557.2	100.7	17.5
Making baskets	60.1	372.6	473	72.6	21.7
Weaving and plaiting in wood, straw, bast, and rushes	35.3	272.6	500.6	155.5	36
In turnery, also at cork cutting	58.7	322.5	510.9	92.4	15.5
Working in tobacco	40.6	238.2	557.3	146.8	17.1
Sewing	91.7	490.2	348.9	54.7	14.5
Tailoring	55.8	436.9	432.5	62.8	12
Making ready-made clothing	35.4	356.8	539.5	61.2	7.1
Making millinery	56.3	453.1	443.4	41.6	5.6
Making hats and caps	35.8	282.9	543.6	120.1	17.6
Making suspenders, etc	48.6	333.3	499.4	107.1	11.6
Making shoes	52.6	476.8	422.1	39.5	9
Laundrying	22.1	222.3	473.4	218.7	63.5

Percentage of workers in general industry in every 1,000 workers, according to age and sex.

Branch of industry.	Males.			Females.		
	Under 15 years.	15 to 20 years.	60 years and older.	Under 15 years.	15 to 20 years.	60 years and older.
Making porcelain goods	49.7	245.3	28.2	66.5	427.5	11.5
Making tacks, nails, etc.	34.8	231.9	30.6	7.4	477.2	19.2
Making scythes, cutlery, etc.	48.2	297.8	24	72	395.6	18.8
Making musical instruments	53.8	263	24.8	70.6	436.8	5.6
Spinning, hackling, etc.	68.5	242.5	44.8	64.4	368	22.7
Weaving, including ribbon weaving	38.7	231.3	44.3	43.8	333.8	19.1
Rubber and hair plaiting and weaving	16.2	150.1	36.5	21.6	289.8	40
Knitting and doing common weaving	77	366.2	19.5	73.7	485.1	20.4
Crocheting, embroidering, and lace making.	106.5	208.2	12.8	112.1	456.5	9.3
Bleaching, dyeing, etc.	20.9	163.1	54.9	46	383.6	15.6
Making passementerie	41.8	237.8	28.5	56.8	438.4	12.1
Making common smooth wooden ware	31.6	261.9	35.3	71.8	370.9	19.4
Making furniture and parquet flooring	35.8	290	17.4	50.1	276.9	33.7
Making baskets	58.5	376.8	20.8	70	345	27.5
Weaving and plaiting in wood, straw, bast, and rushes	32.4	226	40.4	34.1	313	32.2
In turnery, also at cork cutting	57.1	313	43.6	74.1	144.1	13.7
Working in tobacco	38.6	194.5	17.8	43	291.7	16.2
Sewing	....	....	....	91.7	490.1	14.5
Tailoring	54.6	418.9	13.2	61.5	518.5	6.1
Making ready-made clothing	33.6	276.6	13.4	35.7	371	5.9
Making millinery	75.7	301.4	17.7	55.3	460.7	4.9
Making hats and caps	34.8	253.7	18.9	39	388.2	13.2
Making suspenders, etc.	47.9	245.3	12.8	49.4	432	10.4
Making shoes	52.5	478	8.9	56.7	433.9	11.2
Laundrying	29.1	189	53.5	21.4	224.9	64.1

NOTE.—By "general" is meant all industrial work—factory and house.

CHILD LABOR.

There thus appears to be a relatively less number of children under fifteen years of age employed in house industry than in general industry. In house industry, among a total of 339,644 workers, only 4,449 are less than fifteen years old, that is, 1.3 per cent., while of 4,096,243 persons in general industry 138,396 are less than fifteen years old, or 3.4 per cent. It is thought that in the enumeration of children employed in house industry parents have, to some extent, purposely failed mentioning the employment of their children, because a good deal of complaint is made by writers on house industry of the excessive employment of children in it, as they are put at some kinds of work of this species when only three or five years of age; and when, later on, they have to go to school, the parents make them work before and after school hours. One writer on the silk and velvet industry of the Rhine says that children are quite generally used for winding the spools. Children from five years old, he says, sit in the most cramped and uncomfortable positions, with their legs drawn together and their backs humped up, in overcrowded rooms at the bobbin wheels, to the neglect of the schools; or, if they by law have to attend school, they are put to work by their parents at 6 or half-past 6 in the morning and made to work until school time, and on returning from school made to work again until 8 o'clock at night.

Another writer, commenting on the toy making in Thuringia, says that children are set to work at it the moment they arrive from school, and kept busy painting wooden figures and on some kind of light work until far into the night. In the villages of the Taunus Mountains children, it is said, when only three years of age are put to inserting rubber bands into nets and gloves, and made to work for two or three hours at it a day. Any one passing through one of these villages on a summer day after school hours will see the young children everywhere sitting before their house doors or under the trees or at the sides of the fences working away for dear life at this occupation. The factory inspectors of the Empire, in their annual reports, have also seen cause to complain of the immoderate and improper employment of children in house industry.

In house industry old men are engaged to a greater extent than in the factories, for, while in general industry but 29.9 persons out of every 1,000 workers are sixty years old and upwards, in house industry there are 111.6 in every 1,000. This is because many a man who is unable to answer the requirements of regular factory labor, on account of age or disability, is able to work somewhat at home.

HOURS OF LABOR.

The hours of labor in house industry are, in many instances, excessively long. The Thuringian wood carvers sit at their work all day and late into the night; the slate-makers work eighteen hours a day. The basket-makers in Upper Franconia and Coburg rise in summer at half-past 4 and in winter as soon as it becomes gray, and work in the height of summer until half-past 8 at night and in winter by lamp-light until late at night. Workers in meerschaum at Ruhla work generally fifteen or sixteen hours a day in summer, usually from 4 in the morning until 8 at night, and in the winter from 5 in the morning to 6 at night. The makers of musical instruments at Markneukirchen and Klingenthal work twelve hours a day, exclusive of the pauses for rest and meals. The makers of harmonicas in Upper and Lower Sachsenberg and other villages of the Klingenthal district are at their work by 5 o'clock in the morning and seldom quit it before 8 at night; an hour at midday—often only half an hour—is the only pause they make, and their breakfast and suppers are eaten while at work. The hand-weavers of Saxony who work at home labor from fourteen to fifteen hours a day, while weavers in the factories work only eleven to twelve hours a day, with a pause of one hour at noon and one of fifteen to twenty minutes in the forenoon and afternoon, respectively. The nail-makers in the Taunus Mountains work over twelve hours a day at severe labor. In making net-work the women sit at their work from 6 o'clock in the morning until at least 10 at night, with a short respite at noon only, when they take their scanty dinner.

WAGES.

The wages paid in house industry are very paltry, and allow the recipients only a miserable existence. In the Crefeld district the average wages per loom in 1872 amounted to $126.37; in 1877, to only $108. In 1867 a weaver of velvet of one color earned, on an average, $2.38 a week; in 1872, $2.85 a week; and in 1877, only $2.14. In the Gladbach district the weekly wages on December 1, 1875, and April 1, 1878, of a successful velvet weaver amounted to only $3.80 and $2.14, respectively; of a skillful silk weaver, to $3.57 and $2.14, respectively; of less skillful workmen, to $2.85 and $1.42, and $2.61 and $1.42, respectively. A sword-maker earned at Solingen in 1877, weekly, $3.10; a polisher, $3.33; but each had, on an average, three months of unemployed time in the year. At Remscheid wages were much higher.

In the Thuringian house industry, the earnings of the toy-makers in the Sonneberg district average weekly as follows: Of an embosser, aided by wife and children, to $2.85 or $3.57; of a turner, to $1.66 and $2.14; of a female worker on doll-baby hair, 80 to 95 cents; of a slate-maker, to $1.42; of a paper box maker, to 71 cents. Handsome wages!

At Ruhla the makers of meerschaum pipes earn, when they have full employment, the best of them, $4.28 to $5 a week; ordinary workmen, $2.85; and poor workmen, but $1.90 to $2.14.

The earnings of a family of wood carvers in the high country of the Eisenach district, consisting of five members, including two children going to school, is said to be $3.57 to $3.80 a week when they have full employment, and are of the better class of workers. Poor carvers hardly make enough to obtain their daily bread. Cork cutters in the same region are still worse paid, a whole family of them receiving only $1.19 to $1.90 a week. Among the makers of willow ware in Upper Franconia and Coburg strong men who have the rough work with whole willows to perform earn only $2.85 to $3.57 a week. Ordinary workmen manage to make only a miserable livelihood. The makers of musical instruments at Klingenthal and Markneukirchen get much better wages than the people just named. In Klingenthal the makers of the different parts of harmonicas earn weekly: Straighteners, $1 to $1.70; polishers and tuners, $1.90 to $3.57; finger-board makers, $2.50 to $3.57; case and frame makers, $2.38 to $4.76; women making bellows, about $1.25. Persons making the inferior mouth-organs make lower wages, and those working on intricate accordians higher. At Markneukirchen makers of violins made in 1882 from $2.38 to $4.28 a week. The average daily earnings amount to about 47 cents, which is considered very good wages, as board and lodging there do not cost more than 15 cents a day.

In the making of textiles the wages in Saxony for house industry are very poor and oftentimes very fluctuating. In the year 1875 a hand-weaver of fine mull earned $2 a week, but in 1877 only $1.30. In the factories the wages are always higher. The average weekly wages in the Upper Voigtland, in the vicinity of Oelsnitz, of certain weavers amounted in 1881 to only $1. In 1882 these curtain weavers made from $1.66 to $2.14 a week, while the average weekly wages of a factory weaver of ordinary capacity amounted to $1.73 a week and of weavers at the Jacquard looms to $3.09.

The weavers in the Weilerthal earn, in the great body of instances, only $1.14 to $1.71 a week on the average; and to do this it is necessary that two persons should work, one of them from early morning until evening—yea, even into the night.

HOMES OF THE HOUSE WORKERS.

In view of the meager wages they receive, the homes of the workers in house industry, which are also their places of work, must necessarily be of a wretched character. In the Saxon Voigtland the habitations of the people are said to be generally pretty good, while in Thuringia the conditions under which people engaged in house industry live and work are reported to be lamentable. The places of abode of the Sonneberg toy-makers consist, generally, of one large room with a side room, the first of which has to answer as a living room and work room. It has to be heated, not only in winter, but in summer also, that the toys, which are laid on boards before the stove, may quickly dry; and on the stove water is kept hot all the time, the steam from which escapes into the cooler sleeping room and adds to the natural dampness. The sleeping rooms are seldom aired, and are usually so small that there is room enough in them for only two or three beds put close together, upon each of which two, and often three or four, persons sleep. The houses are overcrowded and cleanliness absent from them. The rooms in which the families live and work are swept out but once a week, but the cleaning up seldom extends into the sleeping room. The slate-pencil makers work in very small rooms, three to five in a room, with the windows closed and the dust from the stone thick. Match-makers work, also, in utter disregard of all the laws of health, and cook their food on the same stoves on which the phosphorus and sulphur are prepared. The stench in these rooms to the incomer is almost unbearable. Every thing in the house—human beings and articles—is besmeared with phosphorus, and the cracks in the floors and the separations between the boards show an accumulation of match-heads, matches, dust from phosphorus, and other dirt, while children of tender age just old enough to creep over the floor can be seen playing in it all.

In the Eisenach hill country the people in house industry live also in miserable habitations. They live and work in houses lightly built, in rooms small and damp, with low ceilings for the most part, which are oftentimes used to sleep in, as well as to live and work in. The beds are often dirty, and several persons frequently sleep together in one. The people are mostly engaged in making corks and carving in wood. Among the basket-makers in the same region a room which serves the threefold use of living, working, and sleeping room is the rule. It has generally a table, a bench, two chairs, and two beds in it. The beds are of straw, ill smelling, with no sheeting over them. The walls of the room are plastered, but dirty, and the floor has dirt on it an inch thick. Then they have a kitchen, in which they keep a clothes-press and a plain bureau.

In the Taunus Mountains the workers in house industry are also badly off. Pretty much the same kind of conditions exist here as have just been described.

In Anhalt, Schleswig-Holstein, and Bremen the factory inspectors of the Empire report the conditions under which the workers in tobacco live and work as altogether unfitting. In Altona, Ottensen, and Wandsbeck the people work in overcrowded cellars and garrets, with the windows kept tightly closed. It is said that they sit at work in such rooms so thick together that when one will go out all the others in his row have to stand up and lay their stools on the work-table to let him pass. At night a petroleum lamp gives light, and heat an old stove supplies. Here young and old—men and women, boys and girls—sit together and work their lives out over the smokers' "weed."

On the whole, the work rooms of the people engaged in house industry are more injurious to the health than factory rooms, and are under no control from the factory inspectors of the Empire. Especially woful is the condition of these people in parts of Thuringia, in Schmalkalden, and in the villages of the Taunus, while on the Rhine and in Saxony they are better situated.

FOOD.

When habitations are so bad, food must be correspondingly inferior. It is meanly simple, and consists chiefly of potatoes; it is potatoes morning, noon, and evening. Chicory coffee, coffee water, bread, butter, cheese, vegetables, sauerkraut, peas, beans, rice, beer, and milk are also sometimes taken. Meat is rarely partaken of. In Remscheid the people in house industry eat meat three times a week, but in Schmalkalden hardly ever, except when a hog has been raised by the family. In the Weilerthal, and in Markneukirchen or the Klingenthal, it is, at the most, only once or twice a week that meat is had; in the Taunus only on Sunday and holidays. In the Saxon Voigtland the rate of consumption of meat has been put for 1875 at 49.4 pfennigs (11½ cents) per head of the population, and for the whole Kingdom of Saxony, at 66.1 pfennigs (15½ cents) per head.

HEALTH.

These people have come about as near solving the riddle of living on nothing as it is possible to reach. That the health should suffer from poor food and inferior habitations is natural. Among the recruits in the Saxon Voigtland in 1867 out of every 100 men only 29.74 were found fit for military duty, while in the whole Kingdom of Saxony the rate of those fit for the army was 36.25 out of every 100. In the Bergischland the number of unfit in 1873 and 1874 was 45 to 56 per cent.

MORALS.

The morals of the people working in house industry are about those of the general run of factory operatives. Throughout Germany 11.5 per cent.

of all the children born from 1861 to 1870 were illegitimate; from 1871 to 1880, only 8.9 per cent; but in the towns of the Voigtland, where house industry is largely carried on, 14.6 per cent. of the births from 1868 to 1870 were illegitimate, and in the country 18.8 per cent. In the Markneukirchen district 16 per cent. of the children born from 1865 to 1870 were illegitimate, and in the Klingenthal district 22.2 per cent. In Thuringia the people are quite lax in their morals. Saxe-Meiningen showed in 1866 that about 12.93 per cent. of its births were illegitimate. Among the Alsatian weavers there is said to be little illegitimacy.

HOUSE INDUSTRY AND AGRICULTURE.

The people engaged in house industry are often given to cultivating small patches of ground, whereby, no doubt, some of the injurious effects of long work under unhygienic conditions are repaired. About 20 per cent. of them do this, it is said. Of those engaged in the various kinds of spinning about 12 per cent. do some agricultural work; among the weavers, about 34 per cent.; of those doing knitting and the like, about 15 per cent.; of those crocheting and embroidering, about 7 per cent.; but the percentage varies in different parts of the Empire, being large in some and small in others, as would naturally be expected.

GENERAL SUMMARY.

The general condition of the workers in house industry is far from pleasing, and they are not as well off as factory operatives. Their earnings are generally smaller, their hours of labor longer, the conditions under which they work less hygienic, and in times of financial crisis they are more without work and suffer more. The factories are amenable to law, and must be built and run according to fixed regulations; but for workers in the house industry there is no law of superintendence.

JAMES H. SMITH,
Commercial Agent.

UNITED STATES COMMERCIAL AGENCY,
Mayence, June 10, 1890.

SHEFFIELD-AMERICAN TRADE.

REPORT BY CONSUL FOLSOM.

During the twelve months ended September 30, 1890, the total value of the exports from the Sheffield district to the United States amounted to $3,364,415.14, an increase over the previous year of $399,926.73. This increase is found in cutlery ($150,795.88); steel, unmanufactured ($149,953.81); glue and other items ($99,177.04). The exports of steel, manufactured and unmanufactured, amount to $1,559,713.20, being the greatest item on the list, and followed by cutlery, valued at a total of $1,307,540.85.

The general trade of Sheffield has been remarkably well sustained during the past twelve months, and is now in a prosperous condition, although the outlook is not as favorable as it was at this time last year.

There has been during the past four months much discussion over the new tariff of the United States and its effect upon the trade of Sheffield. On the 14th of July last a public meeting was held here, attended by 10,000 or 12,000 people, at which speeches were made and resolutions adopted protesting against the adoption of the McKinley bill. Since that time there has been almost daily editorial protest in the local papers in regard to this measure; but at present there is less alarm in many branches of trade, and manufacturers are anxiously awaiting the result of the new tariff, which time alone will show.

The prices of shares in many of the manufacturing companies in this district have decreased, and there is far less speculative investment now than there was last year. In the best concerns, however, good dividends have been paid, and will probably continue in spite of the agitation which has taken place in changes of foreign tariffs.

The following is a detailed statement of the total exports to the United States from this district for the year ended September 30, 1890:

Articles.	Value.*	Articles.	Value.*
Animals for breeding	$7,777.89	Optical goods	$3,892.89
Anvils	8,499.25	Pearl "slabs"	54,566.08
Boiler tubes (steel)	443.85	Pill boxes	624.69
Bricks (silica), fire	854.49	Platinum	7,640.41
Button stuffs	6,632.42	Printed matter	359.50
Copper plates	1,656.89	Raddle	1,878.77
Cotton ties	5,067.73	Salted skins	96,480.67
Cutlery	1,307,540.85	Saws aud saw blades	420.85
Dead oil, in drums	5,654.01	Scythes, sickles, and grass-hooks	5,809.91
Down quilts and pillows	4,216.37	Sheep-dip, in powder	4,331.01
Edged, garden, and other tools	34,135.78	Soda liquor	295.88
		Steel:	
Electro-plated and German-silver goods, etc	5,631.43	Wire, bars, plates, etc	1,538,205.62
Files	13,386.12	Armor plate and fastenings	3,234.81
Glass bottles and fittings	1,562.34	Cylinders	1,034.62
Glue	82,232.26	Forgings	10,318.51
Graining combs (steel)	2,552.51	Music wire	1,348.88
Grindstones	2,184.04	Projectiles	887.52
Hair and fiber	14,391.75	Tubes	1,976.77
Horns and horn tips	9,001.69	Tires	2,706.47
Horn and ivory, manufactures of	13,373.56	Tungsten alloy	2,652.79
Iron	3,748.73	Umbrella ribs and stretchers	15,394.55
Linens	16,868.66	Veterinary instruments	299.29
Machinery	2,497.46	Wines and spirits	1,201.14
Magnets	2,864.08	Sundries	1,406.44
Measuring tapes, rules, and straight-edges	54,672.91	Total	3,364,415.14

*In United States gold.

BENJAMIN FOLSOM,
Consul.

UNITED STATES CONSULATE,
Sheffield, October 10, 1890.

TEXTILE WAGES IN THE UNITED KINGDOM.

REPORT BY CONSUL BROWN, OF GLASGOW.

Some months since I sent a report in relation to wages paid in textile manufactories of the United Kingdom, compiling from the (national) board of trade report upon that subject. The board has lately made report, dealing with what may be termed the minor textile trades. The trades included in the present report are jute, hemp, silk, carpet, hosiery, lace, small wares, flock and shoddy, hair, lamp and candle wick, and elastic web. In point of numbers engaged in these trades, 220,000 are reported, as against 900,000 engaged in the leading textile trades. Comparison of results, however, is instructive. The one serves to illustrate the other and to indicate that there is little difference in wages. The same rule, of course, applies here as given in my former report, viz, that the year includes the entire year, no allowance being made for holidays, sickness, etc., and which the board, in their former report, says reduces the amount actually paid the tradesmen from 10 to 13 per cent.

Following the order above given, we find the average wages of the workers engaged in the textile industries named, reduced to United States currency, are as follows per annum:

Trades.	Men.	Boys.	Women.	Girls.
Jute	$244.50	$84.00	$121.50	$59.00
Hemp	296.75	73.75	121.75	64.75
Silk	281.00	91.00	127.75	72.25
Carpet	336.75	105.00	115.25	87.50
Hosiery	309.00	106.50	146.00	105.50
Lace	344.50	118.50	160.25	78.00
Small wares	254.75	85.00	136.25	73.25
Flock and shoddy	268.00	131.50	123.00	57.00
Hair, elastic web, and lamp and candle wick	317.25	93.75	123.50	73.70

From these figures it will be seen that lace workers receive the highest wages and jute workers the lowest. Carpet weavers receive wages next to lace workers. By comparison with figures given in my former report it will be seen that cotton operatives are displaced from the position they occupied at the head of the wages list by both the carpet and lace workers; but, if a general average is taken, cotton obtains the first rank, as shown from the following table, compiled from the report cited, but reduced to United States currency:

Persons employed.	General average.	Cotton, average.
Men	$296.85	$319.24
Boys	104.38	117.72
Women	160.83	193.68
Girls	80.05	86.86

The following interesting table of comparison of wages in the United Kingdom—general average, Scotland, and Ireland—is submitted, but is rendered less interesting because so few industries are reported from Ireland:

Articles.	General average.	Scotland.	Ireland.
Cotton	$175.19	$136.26	....
Woolen	170.32	100.86	$102.19
Worsted	136.26	92.46	....
Linen	121.66	126.52	107.06
Jute	126.52	126.52	....
Hemp	155.72	145.99	....
Silk	131.39	145.99	....
Carpet	170.32	170.32	....
Hosiery	165.46	160.59	....
Small wares	131.39	....	111.92

A third report is promised by Mr. Griffin, the efficient compiler of the census of wages, for the board of trade upon the coal and iron mining industries as soon as the necessary data can be obtained.

L. W. BROWN,
Consul.

UNITED STATES CONSULATE,
Glasgow, September 30, 1890.

TONNAGE DUES IN PORTUGAL.

REPORT BY VICE-CONSUL-GENERAL WILBOR, OF LISBON.

I have the honor to inclose a printed copy and translation of a law passed by the Cortes September 16, 1890, in relation to tonnage, anchorage, sanitary, and quarantine dues, and which substitutes for all previous taxes collected for these purposes a single duty to be called "duty on the cargo," and to which all vessels entering the ports of the continent of Portugal and the adjacent islands shall be subject. The law also removes the "additional 6 per cent. tax."

J. B. WILBOR,
Vice-Consul-General.

UNITED STATES CONSULATE-GENERAL,
Lisbon, September 25, 1890.

TONNAGE LAW.

[Inclosure in Vice-Consul-General Wilbor's report.—Translation.]

ARTICLE I. All the duties of tonnage, anchorage, sanitary, and quarantine established by the laws of June 23, 1888, of December 28, 1870, and the additional tax of 6 per cent. which may fall upon them in the terms of the law of April 27, 1882, they all being substituted by one called "duty on the cargo," to which are subject all vessels which come into the ports of the continent of the realm and the adjacent islands.

Upon the duty of the cargo, of which this law treats, no additional tax created by legislative provision is received till the date of the publication of this law.

ART. 2. Portuguese or foreign vessels, sailing or steam, employed in navigation of the high seas or coasting shall pay the duty of the cargo, when leaving national ports, in harmony with the following basis:

(1) For each ton of 1,000 kilograms of cargo discharged, 250 reis.

(2) If the cargo be on the whole or in part coal, coke or sulphur, it shall only pay the duty of 100 reis per ton of 1,000 kilograms discharged, in the place of the duty of 250 reis to be collected on other merchandise.

(3) Each vessel discharging shall not in any case pay as duty on cargo less than 5 milreis.

(4) A vessel which on discharging shall have paid the minimum of the duty above established of 5 milreis shall be exempt of any payment of duties on the cargo loaded.

(5) Vessels in ballast or coming in loaded, which they do not discharge, shall pay for such cargo as they receive the fixed duty of 5 milreis, whatever may be the quantity of cargo taken by them.

(6) For each passenger landed they shall pay 300 reis and for each passenger shipped 1 milreis.

Are exempted:

(1) Vessels leaving the Douro bar shall pay 20 per cent. additional duty in substitution of the special tax established by February 15, 1790.

The product of this percentage shall be exclusively destined to the improvements of the bar of Douro and can not have any other application.

* * * * * * *

(2) Vessels proceeding from infected ports shall pay 25 per cent. additional duty in addition to quarantine tax, this not to exceed 15 milreis for sailing vessels and 25 milreis for steamers, as in the terms of article 240, table No. 2, of the general maritime sanitary regulations of October 4, 1889.

No tax shall be collected in relation to passengers destined to the Portuguese colonies or having left them and shipped again; and thus, also, in regard to shipwrecked men, prisoners, poor people, and minors of twelve years of age.

* * * * * * *

ART. 4. Ships of war are exempt of the duties established in the preceding articles; also yachts legally constituted and known, fishing, towing, open boats of whatever tonnage, cabotage whose tonnage is inferior to 20 tons, and those comprised in any of the following cases:

(1) When arriving or going out in ballast, and, when coming in loaded, go out in ballast to be repaired in foreign countries and return also in ballast to receive the same cargo.

(2) When to receive only provisions or coals, if they are steamers.

(3) When, although they may have made some commercial operation, they are condemned as unseaworthy and destined to be broken up.

(4) When transporting only prisoners, poor people, or any other individuals by order of consuls or other local authorities.

(5) When arriving in port for special and exclusive reception of merchandise from vessels discharging by *force majeure* duly proved.

(6) When only transporting specie in coin or bars.

(7) When going out exclusively with salt for foreign countries or the colonies and not having discharged any thing.

(8) When coming in and going out without any commercial operation.

In the port of Funchal vessels shall be free from duty of cargo for five years, counting from the publication of the present law, except, in view of contract, those belonging to companies subsidized by the State.

ART. 5. The discharge of merchandise for repairs, which the vessel may need, or for sanitary purposes, in case of quarantine; the sale of damaged merchandise or of any part of the cargo for the expenses of the vessel, when the captain certifies that he can not raise money in any other way for the end indicated; the transshipment to another vessel of merchandise brought in by ships put in by *force majeure*, and that can not be transported in these with safety to their destination, or that are susceptible of deterioration or loss in value by delaying their expedition, are not commercial operations for the payment of duty of cargo of which this law treats.

ART. 6. The calculation of the quantity of cargo shall be regulated, respectively, by weights declared in the consular manifests and by documents accompanying the cargo from the ports whence they come.

ART. 7. In the importation of lumber of any kind every cubic meter shall be deemed to weigh 700 kilograms.

ART. 8. The provisions of the law of May 2, 1885, continue in force, and any other legislative provision in force for the advantage of navigation to the ports of the adjacent islands.

ART. 9. All legislation to the contrary is hereby revoked.

Given at the palace on September 16, 1890.

THE KING.

SUBSIDIZING THE MERCHANT MARINE OF PORTUGAL.

REPORT BY VICE-CONSUL-GENERAL WILBOR, OF LISBON.

I have the honor to inclose a copy of the law passed by the Cortes on the 15th instant, together with a translation thereof. The object of this law is to encourage ocean navigation by the Portuguese merchant marine, and an appropriation is made by the decree to vessels making ocean and long cabotage voyages. The decree applies to the year 1891, and article 2 indicates the manner of awarding the premiums.

J. B. WILBOR,
Vice-Consul-General.

UNITED STATES CONSULATE-GENERAL,
Lisbon, September 30, 1890.

THE DECREE AWARDING PREMIUMS FOR LONG OCEAN VOYAGES, SEPTEMBER 15, 1890.

[Inclosure in Vice-Consul-General Wilbor's report.]

* * * * * * *

ARTICLE 1. Rewards intended to develop the strength of the national merchant marine are hereby created in the terms of this law for long voyage and great cabotage. The amount destined for such purpose to be voted annually by the Cortes.

(1) The Government is authorized to spend in rewards to navigation during the next calendar year of 1891 the sum of 25,000 milreis.

(2) Vessels belonging to companies subsidized by the State are excepted from these premiums.

ART. 2. The amount referred to in the preceding article shall be distributed annually in proportion to the number of miles sailed by each vessel and the respective tonnage, taking as basis for distribution the product of the number of miles run multiplied by the number of meters of gross tonnage of the vessels, to be calculated by the Morson system.

For that purpose the number of miles run shall be determined by the distance of the shortest course to the port, from the departure of the vessels to their entrance in the national ports of the continent and adjacent islands. The intermediate voyages, the touching of ports, and returns to harbor, when there are such, must be established by documents issued by Portuguese consular authorities in the ports where the vessels may have successively entered.

Art. 3. The quota of the reward of navigation to wrecked vessels or such as were condemned as unseaworthy shall be regulated by the number of miles run from the departure of the same vessels to the place where the wreck took place or to the port where they were condemned as unseaworthy. In the case of not being possible to determine the place where the wreck took place, the whole distance shall be counted as if the vessel had arrived at its destination.

Art. 4. The payment of the rewards of navigation shall be effected annually, the accounts being closed on December 31, and paying the owners within the maximum space of time of ninety days previous to that date the amount liquidated.

Art. 5. In case of war the State can require for its service all merchant vessels benefited by the rewards granted by this law.

The captains of such vessels are bound to transport gratis the mails which the post-office may entrust them with in Portuguese ports where they come from or where they put in.

Art. 6. This law shall commence on the 1st of January, 1891, and the Government shall make the necessary regulations for carrying it out.

Art. 7. Contrary legislation is revoked.

CHUNG-KING AND THE PROVINCE OF SZ-CHUEN.

REPORT BY MINISTER DENBY, OF PEKING.

THE PROVINCE OF SZ-CHUEN.

History.—The province of Sz-chuen, lying in western China on the borders of Thibet, has been known for many hundred years as one of the most prosperous and peaceful portions of the Empire. It has always held a rank of some importance, and was at one time the site of the capital, the emperors of the later Han dynasty having ruled at Ching-hu Fu. Its present flourishing condition, however, dates from the early part of the seventeenth century. At that time, in the disorders of State which culminated in the overthrow of the Ming dynasty, Sz-chuen was devastated and almost depopulated by the notorious robber Chang Hsien-chung. To repeople its fertile hill-sides land was allotted to immigrants from Hu-kuang and Kiang-si, to whom, as an inducement to settle, great reductions in the land-tax were made. This ancient concession has been conscientiously adhered to, so that to this day the land-tax remains almost nominal.

Throughout the present dynasty its history has been uneventful. The Taiping rebellion, which devastated thirteen provinces, inflicted little or no injury here. Continued peace, fertility of soil, and freedom from taxation have enabled the inhabitants to attain to a degree of prosperity and contentment contrasting favorably with other parts of China.

Geography.—Sz-chuen comprises a territory of 167,000 square miles, being almost as large as France, and has a population numbering between 35,000,000 and 45,000,000. It may be described, in general terms, as a plateau at the foot of the vast highland of Thibet, exceedingly mountainous in its topography, and abounding in streams and rivers, carrying a large volume of water and flowing with great rapidity. From the four largest of these rivers Sz-chuen (four rivers) gets its name. In geographical features it is divided into two parts, Western and Eastern Sz-chuen. The former partakes of the character of the central Asian table-land. It is very rugged in its conformation, sparsely populated, and almost unfit for cultivation. The eastern portion, however, called by Richthofen the Red Basin, from the abundance of its red sandstone, is the scene of the industry, wealth, and prosperity which mark descriptions of western China. The climate is of an almost tropical character, and the soil of great fertility, producing nearly all the cereals, as well as silk, hemp, sugar, tobacco, opium, and an unusual variety of fruit. Cotton is cultivated to some extent, but not in sufficient quantities to supply the demands of the local market.

Opium cultivation.—The growth of opium has in recent years assumed great importance in Eastern Sz-chuen. The poppy is grown over vast areas, forming, in many instances, a regular winter crop of the bean and Indian corn lands. This crop is very profitable to the farmer, not only for the drug produced from the sap, but for the oil pressed from the seed, the lye manufactured from the ashes of the stalks, and the leaves, which furnish food for pigs. Thirty catties of seed will yield 10 catties of superior oil for illuminating purposes or for food. Though it is doubtless chiefly for the opium produced that it is cultivated, it is said that the other products of the poppy would remunerate the grower. It is not difficult to raise, will mature in time to allow other crops to ripen on the same ground the same year, and the opium produced is readily converted into cash, all of which tends to make it popular with the farmer. The facility with which opium, on account of its convenient form and small bulk in comparison with its value, can be carried over the mountainous roads of Sz-chuen, enabling the bearer to evade vexatious likin stations and to smuggle it duty free into neighboring markets, tends also to make it an exceedingly profitable product. Some idea of the inducement to this smuggling can be formed when it is remembered that the customs duty on imported opium is 110 taels per chest. A large percentage of that produced in Sz-chuen evades all taxation whatever. The area under cultivation annually increases, and the drug of Sz-chuen, with that of Manchooria, to which, however, it is inferior, constantly encroaches on the market of the Indian product. It is a source of great dissatisfaction to the missionary to observe the wide extent of fertile ground given up to Indian corn and poppy—the one to be converted into alcohol, the other into opium.

Minerals.—The mineral resources of this province have been long known to the Chinese, though, with the primitive means at their disposal, never fully developed. Bituminous coal, copper, gold, and iron ore are abundant, but mined in only limited quantities.

Salt and gas wells.—Salt, which is a Government monopoly, is obtained by the evaporation of the water of the brine wells which abound in certain districts of Sz-chuen. These brine wells and the manufacture of salt there constitute a most interesting industry. The wells are found about 175 miles from

Chung-king, on the bank of an affluent of the Yang-tze River, near the flourishing city of Tzu-lin-tsin, or "self-flowing wells." The manufacture of salt, which has been carried on here for sixteen hundred to two thousand years, is conducted somewhat as follows: By means of a rude iron drill holes 6 inches in diameter and varying from a few score of feet to 5,000 or 6,000 feet in depth are bored in the rock. The boring sometimes lasts for forty years before brine is reached, and is carried on from generation to generation. When salt-water is finally found, it is drawn up by bullocks in long bamboo tubes by means of a rope working over a huge drum. In the vicinity of the salt wells natural gas wells are also found, from which gas is supplied to evaporate the brine in large iron caldrons, leaving the pure salt as a deposit. The product of salt here is enormous. There are twenty-four gas wells and about a thousand brine wells in operation in the vicinity, producing annually 200,000 tons of salt, valued at $5,000,000.*

The methods of boring these wells and of evaporating the brine have been repeatedly described and need not be detailed here.† The industry, however, is one of the most important and interesting in China. A recent traveler says:

> No one can visit this remarkable section of Sz-chuen and see the operation of this ancient industry without feeling more respect for the people who designed and executed an undertaking on so prodigious a scale sixteen centuries ago.

It is rather a remarkable fact that Marco Polo, the noted Venetian traveler of the thirteenth century, who mentions the oil-wells on the Caspian Sea, and whose notice nothing of importance seems to have escaped, does not speak of the kerosene and natural gas wells of Sz-chuen, though such phenomena were absolutely unknown in Europe at that time. He remained probably but a short time in Sz-chuen, and mentions only its capital city and its mighty river, which he identified with the Yang-tze, but which is the tributary river Min.

THE CITY OF CHUNG-KING.

The recent convention concluded between China and Great Britain, opening Chung-king to British trade,‡ attracted attention anew to that city and to the resources of the province of Sz-chuen. Chung-king is the commercial metropolis of western China, and, under its new status as a treaty port, is destined to annually increasing importance. It is situated on the Yang-tze, at the mouth of the Kiating River, 725 miles above Hankow and 1,506 miles from Shanghai. It is beautifully located on a sandstone promontory surrounded by mountains, and resembles, it is said, the city of Quebec.

Notwithstanding the difficulty of passing the Yang-tze gorges above Ichang with junks towed by coolies against the rapid current, the trade between Chung-king and the lower river ports is considerable. The Yang-tze and its tributary here are covered with thousands of junks, and the wharves and river front present the animated scene of a busy mercantile center. The past history of Chung-king does not reach back to any great antiquity. It is said to have been built by imperial command about two hundred and thirty years after Christ. Its ancient earth walls were replaced with stone in 1400, and these were destroyed at the siege which the city underwent at the beginning of this dynasty, in which most of the population were slain. Since this disastrous incident Chung-king has flourished with the prosperity of Sz-chuen. It now numbers about 120,000 people, and is the second city in the province, Ching-tu-Fu, with 1,000,000 people, being the first.

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* "Western China," by Vice-Consul Hart, 1888.

† See Mr. Denby's report of March 10, 1888, published in CONSULAR REPORTS No. 93, p. 200, May, 1888.

‡ See report immediately following.

Chung-king was the scene of the disastrous anti-foreign riots in 1886, in which the Roman Catholic, English Inland, and the American Methodist Episcopal missions suffered the destruction of their property. The loss sustained, however, was fairly compensated by the Imperial Government, and these three missions are again in the field. Since that time, no hostile feelings seem to have developed themselves among this usually peaceable population.

It is to be hoped that trade at Chung-king as a treaty port will increase so rapidly and be found so profitable and desirable that the restriction of steam navigation to the lower Yank-tze will be soon abolished, and the whole province of Sz-chuen be brought within cheap and easy reach of foreign commerce. The resources of the province, the industry and prosperity of the people, are such that the foreign merchant's most sanguine estimate for the future can not be considered extravagant.

CHARLES DENBY,
Minister.

UNITED STATES LEGATION,
Peking, August 28, 1890.

A NEW OPEN PORT IN CHINA.

REPORT BY MINISTER DENBY, OF PEKING.

It is known to the Department that in the year 1887 Mr. Little, a subject of Great Britain, built a small steamer for the purpose of navigating the Yang-tze between Ichang and Chung-king. This intention was based on the Chefoo agreement of 1876, wherein it was stipulated that—

> British merchants will not be allowed to reside at Chung-king or to open establishments or warehouses there so long as no steamers have access to the port.

This clause is, in its terms, rather indefinite. Sir Thomas Wade said that it was so made intentionally, but English merchants claimed that it was an implicit agreement that steamers might ascend to Chung-king.

When the steamer was nearly ready to make the attempt to go up the river the British minister deemed it advisable to procure the assent of the Imperial Government before making the proposed voyage. Negotiations followed, but the local objections were so great to the use of steam on the river that the yamen delayed granting the permit. It occurred to the Chinese that a way out of the difficulty would be to buy outright the steamer *Keeling*, which had been especially built to ascend the gorges. But this scheme was sure to be a mere make-shift, as it would deter no other British subject from entering upon the same enterprise and could not do away with the Chefoo agreement.

Inspector-General Hart was called in as arbitrator. He proposed that steam should be excluded, but trade might be carried on in native boats. The British foreign office approved this compromise, with the understanding that the *Keeling* should be bought and that Little should be compensated for his loss of time. Sir Robert Hart was empowered to offer to Little 120,000 taels for the purchase of the steamer and godowns and for his compensation. This offer was accepted.

Finally a new agreement was made, by which Chung-king becomes an open port; the English may hire Chinese boats or build and use boats of their own after the Chinese pattern; they shall be subject to the general trade regulations prevailing on the Yang-tze; the boats shall be provided with passports, and shall be subject to the supervison of the customs *taotais*; as soon as Chinese steamers ascend the river English steamers may go up; the convention shall be as binding in all respects as the Chefoo convention.

CHARLES DENBY,
Minister.

UNITED STATES LEGATION,
Peking, August 21, 1890.

THE AURIFEROUS DEPOSITS OF PERU.

[Report of Sir C. Mansfield, British minister at Lima.—Transmitted to the Department by Mr. Hicks, American minister.]

The absence of trustworthy data in Peru makes it difficult to furnish information of value upon the industries and commerce; and bearing in mind that, with regard to foreign enterprise, the future of this Republic lies in mining, I have thought that the accompanying report upon the gold deposits of Peru may not be otherwise than useful.

My information has been drawn from the reports of the Lima school of mining.

There is no good map of Peru, and many of the spots mentioned will not be found in maps. The larger towns and rivers will be found without difficulty; but doubtless many names indicated represent temporary settlements or former workings, Indian villages deserted or in existence, or spots or hills where chapels have existed or still exist.

In the mountain ranges of Peru, in the vicinity of the sea-board, whenever the rocks are of a crystalline character, gold is found in veins of quartz, which have been intruded into the granite and syenite.

In this belt almost all of the spurs of the Andes are of the above formations, and the auriferous quartz is almost invariably accompanied by oxide of iron and mica.

The proportion of oxide of iron associated with the auriferous quartz present considerable variations. Every possible form is met with, from white quartz permeated with small ferruginous spots to a reddish rock so charged with oxide of iron that the latter forms almost the entirety of the auriferous mineral, the quartz appearing, as it were, in an accidental manner.

The quartz in the auriferous minerals of the coast varies considerably in appearance, being found crystallized in prisms, in semi-crystallized grains, agglomerated with and united by oxide of iron, or in amorphous masses more or less compact, or friable with the appearance of scoria.

In this district the auriferous quartz is often associated with other minerals, such as a white talcose substance, smooth to the touch, with a silky, almost silvery polish, with flakes of carbonate of lime of a laminar structure and limonite of a resinous appearance.

Lastly, on the coast of Peru gold may sometimes be discerned in copper minerals, as well as in those mixed with chalk, copper pyrites, malachite, alacamite, and silicate of copper.

In the upland districts, where the formations exhibit the character of aqueous deposits, veins of gold are not only found in crystalline earths, but also in metamorphic rocks, such as quartzites and slaty schist, intruding themselves into the sedimentary and eruptive formations.

In these veins the gold is sometimes in a pure state, as well as in pyrites, sulphuret of iron, or accompanied by other metallic sulphurets more or less auriferous—copper pyrites, panabase, bournonite, galena, jamesonite, etc.

Gold in the mountain ranges is found in veins and threads and in the alluvial districts of the same in flakes and grains—auriferous deposits, which are known to the country people by the names of "rebosaderos" and "aventaderos," also as "lavaderos." The above, however do not occur on the sea-board.

In the Cordillera Oriental, in the district called the Montaña, gold is usually found in quartz veins injected into talc and clay slate by upheaval of crystalline rocks. The quartz which accompanies the gold in this district is white, and occasionally exhibits marks of oxide of iron, but the latter is never found in the same abundance as in the auriferous minerals of the sea-board. The above-mentioned quartz, more especially in the province of Sándia, sometimes exhibits stains of mispickel or arsenical pyrites.

In this part of Peru there are important beds of auriferous soil, and it is from hence that the greater number of nuggets have been extracted.

In order to form an idea of the dissemination of gold in the republic of Peru, it will be necessary to briefly pass in review all the districts of the country where, as far as is known at present, the existence of gold has been authenticated, following the departments in geographical succession from north to south.

DEPARTMENT OF LORETO.

In this department there are numbers of gold workings in the province of Alto Amazonas, between Pongo de Manseriche and the mouth of the river Huallaga.

Some of the principal diggings are those of Chanpirumi, Pucayaco, Calentura, Achual, Limon, Nitagua, etc. The above have been worked for about two centuries, with occasional intervals, owing to the attacks of the Indians, who in 1857 destroyed many villages in the neighborhood of Barranca and San Antonio.

In the year 1867 Capt. Mariano Vargas, while on an exploring voyage in a steamer in the rivers Morana and Marañon, visited the diggings and was present at the gold washing carried on by the Indians, and has placed on record his surprise at the excessive richness of the soil in the production of gold.

At the present moment a good many persons are carrying on gold washing with profit in the above localities.

The banks of the river Napo.—This river, rapid in current and of no inconsiderable depth, rises within the frontier of Ecuador. Abundance of gold is carried down in the sands, which the Indians wash in troughs.

The traveler Osculati, who descended the waters of a portion of the river in the year 1846, says that the Indians pay their tribute to the Government of Ecuador with the gold which they extract from the sands of the Napo, filling with gold-dust small tubes of the requisite measure; and any gold-dust above their requirements is again thrown into the river.

DEPARTMENT OF AMAZONAS.

Gold mines of St. Thomas.—The principal gold field in this department takes the name of St. Thomas, and is situated in the province of Luya, distant 2 leagues due south of the village of St. Thomas and the town of Chachapoyas.

The gold-bearing hills are named San José and Chuyurco, and by the latter name is designated the principal vein, about 800 meters in length and from 3 to 24 centimeters in breadth.

The vein of Chuyurco has received the name of Reo, from its traversing the gorge of that name, while another is known by the name of Culquinchar; another, called Hovaluena, is from 30 to 50 centimeters broad. All these lodes run through a formation of talcose and micaceous slate, and the gold lies in rich quartz injections, more or less accompanied by iron and iron pyrites.

The proportion of gold undergoes variations in some specimens, the yield being 14.37 to 115 grams to the metrical ton.

Upon the spot the different classes of auriferous mineral have separate names, the principal of which are "nusco," "panal de rosa," "higado," and "bronce." The first, that is to say, nusco, is the richest in metal and the easiest to work. The color is blackish and is a heterogeneous formation of oxide of iron, manganese, with foliated talcose and quartz. This variety has little consistency and can be broken with the finger, while the gold is often distinctly visible.

Panal de rosa is formed of quartz, more or less intersected with fissures, and in places contains gold in visible quantities. It is, however, far less valuable than nusco, as being more difficult of extraction and harder to crush.

Higado is an oxide of iron, and is sometimes found with nusco or panal de rosa in small isolated masses. The gold is scarcely ever visible, as it is disseminated through the whole in imperceptible dust.

Bronce is a pyrite, or sulphuret of iron, which also contains gold, but for extraction the mineral must be calcined.

Previous to the year 1880 the extraction of gold in this district was carried out in a primitive manner and on an insignificant scale by mills, in which the gold was crushed and amalgamated, requiring a whole day to operate upon one quintal.

In the same year Mr. Arthur Wertheman organized a company at Chachapoyas for working the mine of St. Thomas. A crushing house was constructed, with offices, etc., and the requisite number of hands were got together. Unfortunately, however, after having become acquainted with the manner in which the mine could be worked with profit, the works were interrupted by the Chilian war, when, from want of hands and through the difficulty of communications, operations had to be suspended.

The digging of Patahuachana is situated in the department of Amazonas, at the confluence of the rivers Nieva and Marañon; but, from its isolated position, and owing to the district being in the possession of a hostile tribe of Indians (Aguarunas), the above is not worked. This gold bed was discovered by Bishop Ruiz when on an exploring journey undertaken with the view of opening a road between Chachapoyas and the Marañon.

Gold sands of the Marañon, near Balsas.—In the line which the river Marañon traverses from Cajamarca to Chachapoyas, in the neighborhood of the village of Balsas, is the Quebrada Honda, at the mouth of which gorge the sands of the Marañon contain gold of good quality.

DEPARTMENT OF PIURA.

The gold bed of Hualcarumi is situated in the department of Piura, in the gorge of Hualcarumi, 3 leagues to the north of the town of Ayabaca, the chief town of the province of the same name.

The gold is found in alluvial drift, resting upon crystalline and porphyritic rock. According to Professor Olaechea the gold is found from fine dust to grains the size of a small pea, and he states that 1.87 grams to the metrical ton can be obtained from the mineral.

In the gold mine in the district of Frias, situated in the department of Frias, between the town of Frias and the estate of Yanango, in the province of Ayabaca, the gold is found in a prolific quartz vein intruded into syenite rock.

This mine seems to have been abandoned, for, although the veins are rich, but a small average of gold would appear to have been obtained.

DEPARTMENT OF CAJAMARCA.

Gold in the province of Jaen.—In the northern part of the province of Jaen, in the department of Cajamarca and almost on the frontier of Peru and Ecuador, is situated the village of San Ignacio, in the immediate vicinity of which, and at half a league's distance from the estate of Tomaqui, there exists gold ore, which can not be worked with profit on account of the scarcity of water. Some years since the subprefect of the province made the attempt, but the want of water caused an almost total failure.

Gold sands of the river Chincipe.—Leaving the village of San Ignacio, some 2 leagues to the northeast, we come to the banks of the river Chincipe, the source of which is within the territory of Ecuador. Gold is found in the sands, and might be extracted with profit were not the absence of local resources, bad roads, and the distance from Cajamarca (70 leagues) almost insuperable obstacles.

Gold deposits of Asuncion.—Some 2 leagues to the southeast of the village of Asuncion and about 9 leagues from the town of Cajamarca is found the gold bed of Capan, on a sandy ridge, with rock of a highly metamorphic character. The gold is contained in quartz, with oxide of iron, such as iron pyrites, with pyrites of copper and magnetic iron, as also in an earthy mineral with oxide of iron and coppery stains.

The pyrites, which have been tested, exhibit the presence of gold to about 10.4 to 26 grams to the metrical ton.

The mine is worked in an inefficient manner, borings having only been carried out where rich mineral is supposed to exist.

At a league's distance from Capan, on the ridge Colladar, are the mines of Chirinpata, some of which have been extensively worked. The pits are spacious and convenient, presenting many escarpments, with veins of peroxide of iron alternating with carbonate of lime of a laminar structure, with specks of pyrites, etc.

In the lower part of the gorge, at the base of the above, in a locality called Sapú, are the remains of the works where the mineral from Chirinpata was crushed by primitive mills, such as are universally used in Peru. The principal pits were those of Chirinpata, Colorado, Chino, etc., and it is clear, from the appearance of the remains, that these works must have produced enormous quantities of auriferous mineral. The mineral which remains is of poor quality, and the experiments show but 6.46 grams to the metrical ton. The carbonate of lime, with specks of pyrites, shows hardly any gold, and in the upper part of the ridge there is a vein of ferriferous blende.

Gold bed of Carachugo.—Almost at the summit of the mountain range between Cajamarca and Yanacancha lie various masses of refuse, with the traces of mines formerly worked by the Indians, while flint implements have been found which evidently had been in use for extracting gold. The mines are not worked at present; the quartzose rock is extremely porous, exhibiting almost the appearance of scoria; there are also many pits which have been inefficiently worked, perhaps owing to the proportion of gold not being remunerative.

DEPARTMENT OF LIBERTAD.

Cerro del Toro is half a league distant from the town of Huamachuco. The geological formation of the ridge is almost vertical; strata composed of a reddish white, and in places almost yellow, clay, in which there are veins of talcose clay having the appearance of scoria. In the latter the presence of gold may be distinctly recognized.

The above vein, which goes by the name of Carmen and Rosario, runs south-southeast and north-northeast between strata of white clay, and disappears into the ridge (south-southeast) at an angle of 80°. The layer on the surface is about 1 foot in breadth, but widens as it descends and attains to as much as 2 meters in breadth. The vein has been worked for some time, and has been explored up to a depth of 124 meters. Some 50 meters lower down in the ridge Señor Jara has sunk a shaft cutting the vein transversely and worked more than 40 meters; others have also worked the vein for distances varying from 25 to 40 meters, after which the works seem not to have been remunerative. The direction of the mine is from northwest to southeast. Señor Reyna also worked another ridge, to which was given the name of San Francisco de California, and with fair results.

Gold fields of the province of Pataz.—The province of Pataz, and more especially the southern districts, is one of the richest gold fields in Peru; indeed, it may almost be said that the towns of Pataz, Parcoy, and Tayabamba are built upon gold beds, for in the gutters in the streets of these towns, and particularly in Parcoy and Tayabamba, after heavy rains particles of gold are met with in the mud deposit, which the inhabitants call "astillas," the grains often weighing as much as a gram.

Gold beds in the neighborhood of Pataz.—Mouths of shafts exist in the above, from which large quantities of gold have been derived; but almost the whole have now passed into disuse. The gold occurs in quartz intruded in numerous veins in syenite rock and porphyry diorite, running, almost without exception, in a direction from north to south. The latter is sometimes associated with a whitish rock—a description of kaolin—with occasional veins of talcose clay, called "panizo" by the inhabitants.

San Francisco is situated half a league to the southeast of Pataz, and the principal shaft bears the former name. The mine is on the slope of a ridge, and is 240 meters in extent at a vertical depth of 100 meters. At the base of the slope a pit has been established with works for washing. Veins of sulphuret of lead are associated with the auriferous mineral.

The slope of Jembon, situated to the north-northeast of Pataz and half a league from the town on the road to Cazamarquilla, is rich in auriferous veins. The principal one is called the Polvadera, and the shaft bears the same name. The vein is formed of quartz and talcose clay, and has yielded as much as 13.88 to 520.83 grams of gold to the metrical ton of mineral.

The ridge of Sarumillo, situated on the other side of the river Caruabamba, 1 league to the north of Pataz, possesses a considerable number of veins, which appear to unite at the foot of the slope at a spot called Uquilaya. The mineral is peroxide of iron and yields 12.58 grams of gold to the metrical ton.

Gold mines of Parcoy.—The town of Parcoy, the capital of the province of Pataz, is, so to speak, situated in the midst of gold mines now totally fallen into disuse, but which in former times produced large quantities of gold.

The auriferous slopes in the vicinity of Parcoy are as follows:

The ridge of Mishito is situated to the north-northeast and east of the town, the cemetery of the town lying upon the slope. The auriferous mineral is iron pyrites, or sulphuret of iron, known in the locality as "bronce," and appears in regular veins of a formal character. The mineral is little worked, on account of the small proportion of gold, but it is possible that, from the mineral not being previously calcined, the full amount of gold is not extracted. Small quantities of gold also occur in peroxide of iron in the slope.

The hill of Puyhuancito is situated on the other side of the ravine of La Soledad, half a league to the north-northeast of Parcoy. The deposit of gold is important; the soil, however, is loose and subject to land-slips, which offer serious obstacles to the operations of the miner.

The ridge of Chinchal, situated to the north-northeast of the town of the same name, contains veins of peroxide of iron in which gold is distinctly visible. The mineral is of so loose a character that washing is effected in a trough. Quicksilver is mixed in the same trough, and the siftings are ground in a mill.

At the back of Chinchal is a spur called Puyhan Grande, an integral part of Chinchal. In Puyhan Grande are situated the mines of Gallinero and Corrito Blanco, both extremely productive in gold, and which originally led to the building of the town of Parcoy.

Mine of Tajo.—This mine, situated almost at the end of the gorge, is worked at an open cutting, and is rather a washing than a mine. The auriferous soil, by means of water, is carried over turf, which retains the gold, the turf being raised every fortnight and the gold collected. The Tajo has been extremely productive of gold, but, on account of the risk to the miners through land-slips, operations have been repeatedly prohibited by the Government.

Mine of Gigante.—Almost half-way up the Mishito has been dug a pit called Humachuco, more than 300 meters in length, for the purpose of draining the highly productive mine of Gigante. The latter lies somewhat higher up, at a spot called Concevo, where various veins cross and are parallel to each other. It has been stated that from this mine has been produced as much as a pound of gold to 125 pounds of mineral. In the same mine gold is found in pyrites at the rate of 3 ounces to the metrical ton of pyrites.

The gold bed of Cajas.—Some 2 leagues to the east of the town of Tayabamba, in the province of Pataz, gold is found at the mouth of the river Cajas, and veins occur of reddish sand, with grains of auriferous quartz mixed with ferruginous soil for 4 leagues' distance along the right bank. The gold lies chiefly in the ferruginous soil, and more particularly in a lower formation of gravelly sand, accompanied by rock fragments composed of hematite, or compact specular iron ore, the presence of the latter being recognized by the local miners as a certain indication of gold. In the gold bed of Cajas a nugget has been found weighing as much as 5 ounces, while nuggets of 2 ounces are by no means of rare occurrence.

On the right bank of the Cajas, and close to works, several small streams fall into the river, bringing down gold sands from the slopes. The most productive of the streams falls into the Cajas 3 miles distant from Tayabamba, taking its source in the hills of Pagraska, which are known to contain auriferous formations of considerable richness. The stones brought down by the stream are of talcose slate, which is doubtless the geological formation of the heights.

Gold field of Trujillo.—A gold field has been recently discovered in the interior, 3 leagues from the port of Salaberry. The gold occurs in quartz veins in syenite rock. The quartz, sometimes compact and sometimes friable or porous, is associated with oxide of iron, the latter, indeed, in some places so abundant that the mineral is almost entirely peroxide of iron.

In the earlier experiments gold was extracted at the proportion of 10.4 to 93.6 grams to the metrical ton. Later experiments, however, give the following and much more important results: Gold, 90 grams to the metrical ton; silver, 900 grams to the metrical ton; lead, 30 grams per cwt.

Mines of Zalpo.—The mineral deposits of Zalpo, 30 leagues distant from Trujillo, produce both gold and silver.

The most productive mine goes by the name of Pique de Zalpito. Gold is found in quartz, accompanied by chloride of silver, limonite, and oxide of manganese. Experiments show good results both in silver and gold. The latter is found in a pure state, as well as mixed with sulphuret of lead, highly auriferous, accompanied by copper pyrites, pyrites, and blende.

Gold beds of Guadalupito.—On the right bank of the river Santa, in the district of Verú, in the province of Trujillo, are situated syenite hills containing veins of auriferous quartz in places associated with limestone and talc. A specimen from limonite and talc yielded 10 grams to the metrical ton, while another from quartz, with limonite and calcite, produced as much as 10 grams to the metrical ton.

DEPARTMENT OF ANCHAS.

The department of Anchas, without being as productive as that of Libertad, is by no means deficient in auriferous mineral.

Washings of Pallasca.—Below the town of Pallasca, in the province of the same name, runs the river Chuquicara, also called the Tablachaca, and forms the boundary between the departments of Ancash and Libertad.

The principal gold sands occur from the bridge of Tablachaca to the confluence of the latter river with the river Santa. The inhabitants of Pallasca employed in gold washing are termed "playeros." The gold is found in very small grains, is washed in troughs, and subjected to quicksilver.

Gold is brought down from auriferous soil by tributary streams into the river Chuquicara, more especially by the Chuygoran, which joins the former river a quarter of a league from the town of Pallasca; and it is to be noted that the sand of the Chuquicara is much more productive of gold after the confluence with the Chuygoran.

Some veins of ferruginous-auriferous quartz are met with in the immediate vicinity of Pallasca, in a formation of talcose metamorphic slate, which has been upheaved by an eruption of syenite. A specimen of auriferous quartz from the stream of Chuygoran yielded 58.8 grams to the metrical ton.

Mines near the district of Uco.—This district lies 15 leagues to the northeast-east of Huarí, in the eastern part of the province of the same name. The mines and washings are far from unproductive, and are situated on an elevated ridge of talcose slate and gneiss, by name San Cristobal de Uchusinga, to the north-northeast of the village of Uco.

The quartz veins, in places crystallized and mixed with portions of pyrites, take a south-southeast and north-northeast direction, dipping to the north-northeast at an angle of 75° to 80°. The veins are capped with a thin layer of clayey soil, known in the neighborhood as "caliche." Specimens of the mineral show 37.5 grams of gold to the metrical ton. It is to be noted, of 10 meters horizontal in the ridge some of the quartz is replaced by feldspar rock almost in a state of decomposition, known in the country as "panizo," after which formation the gold diminishes and gradually disappears.

In the Uco district there occur other deposits in the gorge of Minamayhua, on the other side of the ridge of San Cristobal, in the direction of the river Marañon. The diggings are known as Minamayhua, Chinchuragra, and Pucaragra.

The minerals are of alluvial origin, of a reddish color, due to the presence of oxide of iron, the detritus of the soil being composed of rounder stones which have been subjected to the action of water, such as granite, gneiss, talcose and micaceous slate, quartz, diorite, and hematite. The latter occurs in the lower deposits and is an invariable indication of the presence of gold. The alluvial soil rests upon calcareous deposits, with ammonites which belong to the cretaceous formation. Gold in Uco is found also in flakelets and nuggets; the latter, however, rarely weigh as much as half an ounce. An average yield, perhaps, might give from 2 to 3 grams to the metrical ton.

Mines of Janca.—Six leagues from the creek of Culebras, at the mouth of the river Santa, lies the estate of Cusmo, and 3 leagues inland from the latter are situated the mines and hamlets of Janca. The former are but a few meters deep. The vein of ferruginous and auriferous quartz is intruded into slightly micaceous syenite, runs from north to south, and is almost vertical. One league distant from the above are other pits, which have been worked in the last century. The mineral is composed of ferruginous quartz, and the formation of the ridge micaceous syenite.

Gold in these mines is extremely argentiferous. A specimen of quartz taken from the upper part of the shaft yielded: Gold, 41 grams to the metrical ton; silver, 104 grams. A specimen taken from another shaft yielded: Gold, 78 grams to the metrical ton; silver, 63 grams. A specimen of much richer quality, formed of auriferous oxide of iron with friable quartz—a sort of mass in the middle of the lode—gave as much as: Gold, 114 grams to the metrical ton; silver, 90 grams.

Gold mineral of Chuquia.—Shafts completely abandoned and for the most part in ruins exist at a spot called Chuquia, on the northern side of the township of Mato, in the province of Huaylas. Some of the pits show traces of having been extensively worked, while others are but commenced. Gold is found in small quantities in pyrites, oxide of iron, and auriferous quartz. For the most part the gold is not only not visible at sight, but can not even be discerned with a magnifying glass. The specimens vary from 5 to 50 grams to the metrical ton.

Gold deposits in the district of Huaylas, in the same province of Huaylas, in the department of Ancash, are, in addition to silver mines and several auriferous hills, known by the names of Huanca, Toca, Macon, and Milagro. The mineral is composed of pyrites, copper pyrites, limonite, chlorite, kyanite, and quartz, more or less ferruginous. The above, for the most part, are not very productive of gold, but one specimen of pyrites, with copper pyrites, from Toca, gave 35 grams to the metrical ton. Six specimens from Macon varied from 20 to 70 grams to the metrical ton, and five from the ridge of Huanca 5 to 10 grams to the metrical ton.

Gold mine of Quillo.—Close to the village of Casma, in a direction northeast-east to southwest-west, is the gorge of Quillo, through which runs the road from Casma to Yuncay. The mineral is composed of rich quartz, somewhat ferruginous, with reddish feldspar and chloritic talc, a variety of protogine, which are found in masses presenting yellow and green shades. The gold is visible to the eye in the smaller veins of quartz with oxide of iron, and the mineral in general yields an average of 60 grams to the metrical ton.

Mine of Huancoy.—Shafts from which gold has been extracted exist in the vicinity of Huancoy, in the province of Santa. The veins consist of quartz, with oxide of iron, which have been intruded in syenite rock. The mineral is poor enough, although in some places gold is visible to the eye. Specimens have, in no instances, given more than 20 grams of gold to the metrical ton.

Gold beds of Pamploma.—The mineral is found near the confluence of the rivers Barranca and Gorgor. The mineral yields gold as well as lead.

Minerals in the department of Anchas in which gold is associated with other metals.—In the silver mine of Santa Rosa, in the district of Recuay, gold in no insignificant proportion is associated with sulphuret of lead; in the shaft of Balona, with argentiferous sulphuret of lead and in pyrites with bournonite; in the mine of Mercedes, with antimony, with panabase, and blende; in San Bartolomé, with argentiferous jamesonite; in San Augustin gold occurs in argentiferous blende, with pyrites; in Llaccha, with blende, argentiferous blende, and sulphuret of lead with bournonite; in the mines of Toma and Huerta, in sulphuret of lead with anglesite.

In the minerals of the mine Huaylas, in the district of Macate, gold is found in argentiferous limonite and argentiferous blende.

In the several minerals in the district of Aija, in the province of Huaráz, the gold yield is from 20.8 to 31.2 grams to the metrical ton. The minerals are jamesonite, with anglesite and argentiferous sulphuret of lead, in the ridge Huayhuash; pyrites, with mispickel, in the mine of Huancarama; and panabase, with mispickel, in the pits of Yanahuanca. Among the auriferous minerals of the province of Cayutamba may be noted pure silver, with sulphuret of lead, in the mine of Rosario de Auguimarca, and sulphuret of lead, with silver panabase and copper pyrites, in the mine of Santa Rosa.

No doubt other minerals in the department of Ancash which have not been tested contain gold in more or less abundance.

DEPARTMENT OF HUÁNUCO.

The department of Huánuco, although not very productive of gold, contains auriferous deposits which should not escape the notice of the miner.

Washings of Chuquibamba.—The river Marañon divides the town of Chuquibamba, the quarters of which are joined by a bridge. At this point the river becomes much narrower, running between escarped banks of talcose slate, which latter is the predominating geological formation in the district.

In past times Chuquibamba was well known for its gold washings, and on both sides of the river there are remains of gold pits, which were, no doubt, extensively worked. The pits are excavated in talcose slate, which rests upon a formation of alluvial drift. In the last century an attempt was made to divert the bed of the river with the view of procuring gold from the mud, and remains of constructions for this purpose still exist. An American, some fifty years since, made a similar attempt, but died before carrying out his project. A few years ago the same operations were finally completed, but so small a quantity of gold was obtained that the undertaking was a complete failure. The works at Chuquibamba are now entirely deserted, except by the Indians in the neighborhood. Their labors, however, are attended by insignificant results.

Pits of Rain.—Auriferous soil is met with on the left bank of the river Marañon, some 4 leagues from the hamlet of Chavinillo, at a spot called Rain. The above have scarcely ever been explored; but in a specimen of mineral, composed of a conglomerate of limonite, detritus of talcose slate, with small fragments of bones, gold was distinctly visible.

Mine of Boca de Sapo.—In the gorge near the town of Tucapa, near the town of Huallanca, the mineral is of a yellowish brown color, composed of quartzose rock with cavities, and associated with oxide of iron. The mineral yields 32 grams of gold to the metrical ton.

Gold soil of Jesus, in the province of Dos de Majo.—About a quarter of a league from the village of Jesus, opposite the mineral springs and close to the river, are mounds of auriferous soil, which seem to have been heaped up for washing by the Indians in former ages. Gold mines, apparently of some importance, have formerly been worked at a spot called Puelles, something less than a league from Huánuco and immediately opposite the bridge of Huayapampa; also at Mamayaco, where the veins are most productive, while near the latter there are very considerable deposits of copper, also containing gold. At Caņi and Pancar, 4 leagues from Huánuco, there are ridges which should be highly productive of gold, to judge from the remains of the pits now in disuse.

Gold in the districts of Chinchas and Panao.—In the pasture lands of Yanamugui, on the estate of Chinchas, are mines now in disuse, of which the mineral gives 52 grams to the metrical ton, and in a stream on the road from Huánuco to Muña and Chaglla nuggets have occasionally been found of fair size and weight.

Washings and veins of gold in the gorge of Cayumba.—The Cayumba, an affluent of the Huallaga, falls into the latter between the rivers Chinchas and Monzon, in the gorge of Cayumba. The auriferous soil is extensive, and near the mouth of the river the washings are of importance. Rich veins of purish gold are met with at the head of the gorge, of which local tradition gives somewhat fabulous accounts in respect of the production of gold in former times. Auriferous mineral is almost universal in the department of Huánuco—ore composed of pyrites, azurite, argentiferous panabase, malachite, etc.—often yielding as much as 35 grams to the metrical ton.

DEPARTMENT OF JUNIN.

Although extremely productive in silver, is very much less so as regards gold. The latter is found in the sands of most of the rivers, as well as in sparse veins of quartz and pyrites of small value. Gold in almost imperceptible quantities is found in all the streams arising in the eastern cordillera, which, when united, form the river Pirené. The principal auriferous streams are the Oxabamba, the Pancartambo, the Chanchamayo, the Tulumayo, and the Pangoa. The gold, which is brought down by the water, is derived from quartz veins which traverse the great slate formation and crystalline rocks of the cordillera; the gold, however, is in such small quantities that the extraction is not attended with profit.

Gold mines of Cerro de Pasco.—Several gold mines exist at Quinua, 2 leagues from Cerro de Pasco, as well as at Chiqunin and Huanmaranca, which lie in the neighboring heights; the principal mine, Chuquitambo, being at a great elevation. The geological formation of these ridges is gravelly sand of a hardish consistency. The auriferous mineral is composed of cubic pyrites, associated with copper mineral, showing green stains of carbonate of copper; pyrites are also met with in slate formations in the same ridge. The mines have been worked for many years, and the yield of gold averages from 31 to 52 grams to the metrical ton.

Mines of Mosca.—Auriferous quartz veins occur in a talcose slate in the heights of Chancayan, near the village of Mosca, in the district of Huariaca, in the province of Cerro de Pasco; but the gold is so much mixed with silver as to largely diminish the value of the former.

Mines of Pancamarca.—Auriferous quartz, with earthy limonite, occurs at Pancamarca, in the district of Huasahusi, in the province of Tarma.

Mine of Moracoche.—Near the mineral works of Moracoche, in the district of Yanli, in the province of Tarma, is a ridge called Nuevo Potosi. At the base of the latter is a crust of metamorphic sand. Stretching to the mouth of the lagoon lies a gold deposit in a vein of quartz and pyrites. The above was extensively worked in the last century.

Gold in the argentiferous mineral of the district of Yanli.—Pure gold, as well as gold mixed with argentiferous mineral, is met with in considerable quantities in several mines in the district of Yanli, the principal of which are Florencio, Maria, Esmeralda, Union, and Volcan. Volcan is the most productive, more especially when the argentiferous mineral is accompanied by quartz with stains indicative of the presence of oxide of manganese.

DEPARTMENT OF LIMA.

Gold deposits in the valley of Lurin and in the vicinity of Lima and Ancon.—Gold exists in small quantities in all the hills which line the sea-board of Peru. In the department of Lima gold is encountered in quartz seams, in syenite and granite formations, as well as in all the gorges running down to the sea. For example, in the gorge or "mala" there are indications of gold near Calango (in the valley of Lurin), at Manchay, and Sieneguilla.

In the immediate neighborhood of Lurin gold has been extracted in several localities. There is a shaft near Caleras, another in a low ridge called Las Ramas, and there are traces of former works behind the ridge of Amancaes, while from the hill of San Cristobal, overhanging the capital, specimens have been obtained which clearly show the presence of gold. The mineral in the valley of Ancon is of a poor quality, composed of quartz with oxide of iron and with green stains of carbonate and silicate of copper.

Mines in the ridge of Sanú.—This well-known ridge is situated 4 leagues from the town of Huacho. In 1851 some auriferous quartz seams were discovered, which induced thousands of persons to repair to the ridge, imagining that a new California had been discovered. The proportion of gold is insignificant and is difficult of extraction. Much disappointment ensued, and the deposits have been abandoned. Some specimens of mineral have yielded as much as 32 grams to the metrical ton, a ratio which would probably not be maintained upon further experiments.

Gold in Piedras Gordas.—In a ridge at this spot, on the road between Lima and Ancon, faint traces of gold occur in seams of ferruginous quartz, with stains of silicate of copper; and in a specimen of porous quartz, called in the locality "quijo podrído," the presence of gold is distinctly apparent.

Gold mine of Corimina.—In the province of Canta, in the district of Atavillos, the mineral is composed of peroxide of iron, found with metamorphic and ferruginous porous quartz, and contains both gold and silver. The yield averages 15 grams to the metrical ton.

Gold mines of Huayo.—In the district of Huamantanga, in the province of Canta, but now abandoned, the mineral from the mine of Nuestra Señora del Carmen, composed of yellow-reddish limonite of an earthy character and mixed with quartz, yielded 20 grams to the metrical ton. Another specimen from the same mine, composed of limonite with crystallized quartz, gave the same result. Mineral from the mine of Nuestro Señor San José, composed of porous quartz with yellow earthy limonite, yielded 3 grams to the metrical ton.

The mines on the estate of Carretavia are situated in the district of Pativilca, in the province of Chancay, much worked in former times, but at present deserted. The gold occurs in quartz, which has a greasy appearance, due to the presence of talc. The quartz presents small cavities, lined, with oxide of iron and manganese. The mineral gave 10 grams of gold to the metrical ton.

DEPARTMENT OF ICA.

Gold mines in the neighborhood of Ica.—At 3 leagues' distance from Ica gold occurs in various minerals—compact iron ore, metamorphic slate, and hematite—in places associated with black hornblende of a radiated structure, with green stains of silicate of copper and other minerals, a conglomerate of the above, with small proportions of limonite and oxide of iron. The latter mineral is interesting from a geological point of view, owing to the association of gold with hematite, which accounts for the presence of gold in the red detritus, the refuse of various minerals.

Gold associated with copper.—In the copper mines near Ica of Canza, Tigui, and Yanca cuprite, chalcosine, chalcopyrites, phillipsite, atacamite, malachite, azurite, and cuprocalcite, with small quantities of limonite, are frequently associated with auriferous quartz.

Mineral ridge of Cinco Conces.—Gold is found in similar conditions in the copper mineral.

Gold mines of Nasca.—Near Nazca is situated the auriferous ridge of Cerro Blanco, containing quartz veins with oxide of iron. The gold is not visible to the eye. Several experiments of the mineral have yielded 22 grams to the metrical ton. On the estate of San Geronimo, not far from Nazca and the village of Santa Lucia, gold deposits exist, but have never been examined.

DEPARTMENT OF HUANCAVELICA.

This department is not really an auriferous district, but gold exists in several localities.

Ridge of Poteoche.—In this ridge, near the town of Huancavelica, are mines of gold, silver, and copper. Ore taken from the mine of Santos Innocentes, composed of oxide of iron with some azurite and malachite, yielded 31 grams of gold to the metrical ton.

Mines of Julcani.—Eight leagues from the town of Huancavelica, and close to the town of Lircay, are a number of pits in which the metallic mineral forms veins, or rather layers, which alternate with vertical strata of diorite rock of a stratified appearance. The mines of Julcani are silver mines; but in the central ridge, at a considerable altitude, lie the gold deposits of Corihuacta, and gold is distinctly visible in porous quartz, with stains of oxide of iron.

Mines of Lircay.—Gold is also found in small quantities in these silver mines, but only in the higher parts of the ridge.

Gold mines of Coris.—Specimens of mineral taken from these mines are usually rich in gold. The mineral is composed of dendrites and phylites, agglomerated with ferruginous quartzose rock. The above have been but little explored, and no exact data exist of the yield of the mineral.

DEPARTMENT OF AYACUCHO.

Numerous gold mines are still in existence in this department. At the beginning of the century no less than 41 mines were being worked in the following order: Five in the province of Lucanas, 18 in that of Parina, 4 in Cangallo, and 14 in the province of Huanta. They are now, however, almost entirely abandoned, and little is known of their exact locality. The best known and most important mines are those situated in the Chaypi district and the Luicho Hills.

Chaypi gold mines.—In the neighborhood of the village of Chaypi, district of Pullo Parinacochas Province, rise the ranges of Pullo Chaypi and Tocota, which contain many gold mines, abandoned nowadays. Gold is found in quartz, forming considerable veins in the granite and syenite rock, of which almost all the mountains of that region consist. Some specimens tend to show a proportion of 3 to 5 ounces of gold to the cagon (local weight equal to 60 quintals); but, doubtless, working on a large scale would produce better results.

Local tradition makes mention of thirty mines—the best known San Luis and Muchadero—worked during more than eighty years; the former situated 4 leagues south of Chaypi, in the immediate vicinity of that village. Reports of engineers state that, although no gold is found on the surface, the lodes may give 31 to 52 grams of gold to the ton of ore.

In former years the mine of Ancocola, now abandoned, and situated 3 leagues from Chaypi in the Pullo direction, produced considerable quantities of gold. It is stated that a single lode of 6 arrobas (1 arroba = 25 pounds) of ore gave 90 ounces of pure metal. Unfortunately, water, the enemy of most mining undertakings, flooded the galleries, and work stopped. The same may be said of Lambramani, 2 leagues north, and Yamcana, the same distance south, of Chaypi, and the diggings of Pisüaja; lastly, the mine of Tocota contains a lode 1 meter thick, and can not be worked for want of ventilation. Many abandoned mines exist in this region, as Mollehuaco, Great Tocota, San Andrea Triumfo, Santa Rosa, etc.—doubtless a most auriferous region, where, during the rainy season, the mountain torrents carry down and leave in the interstices of the rock and stone gold flakes and small nuggets. It is to be anticipated that the above-mentioned province will become an important mining center. The climate is temperate and healthy, and the distance from the port of Chala comparatively short.

Otoca gold mines.—Near the head waters of the Indenio River, in the province of Lucanas and in the neighborhood of the villages of Otoca and Chariucho, may still be seen the ruins of what, in the days of the Spanish dominion, was one of the richest mining centers—in some districts the tax (quints) levied in 1670–'73 having reached the annual sum of $80,000.

Cerro de Luicho gold mines.—About 2 leagues due northwest from Pausa, former capital of the Parinacochas Province, and forming a part of the spur of the Alcallara range, belonging to the central or Huansa Cordillera, and which separates the valleys of the Cotahuasi and Lampa rivers, rises the gold mountain of Luicho. Although the distance, as the crow flies, from Pausa is but 2 leagues, yet more than six hours must be spent in traveling over very rough and broken ground. The geological formation of Luicho is gravelly, of a metamorphic character, similar to that of Huallura, with the difference that, whereas in Huallura the strata are nearly vertical, at Luicho they run almost horizontal. The gravelly conglomerate is about 800 meters thick, the lower limit being about 2,600 meters and the top of the hill measuring 3,400 meters (11,000 feet) above the level of the sea. The Cerro de Luicho contains numerous mines, now no longer worked, such as Choclon, San Augustin, Santa Barbara, etc. Unfortunately, the earthquake of August, 1868, destroyed most of the shafts and galleries, and little remains to show the far-famed riches of the gold mountain. Besides the lodes, there exist also diggings of alluvial gold; but late investigations brought to light no flakes or nuggets. Nothing appeared but gold-dust in small quantities, mixed with much sand. The alluvium consists of sand, pebbles, shingle, and large stones, and rests immediately upon the metamorphic rock. In 1876 a company was formed to work these diggings. Water was brought from Ospaña, 18 miles distant, by means of an aqueduct; and, according to calculations, an average of 94 grams of gold to the metric ton of 1,000 kilograms was anticipated. The results obtained produced, however, but 10 grams to the ton, and the works were abandoned, notwithstanding that even the reduced findings of gold left ample margin for profit.

Maran gold and silver mines lie 3 leagues south of Pausa, on the opposite bank of the Lampa River. The now abandoned mine of Esperanza is entered from a bluff about 45 feet above the level of the river. The lode runs almost perpendicular in an easterly direction and increases in thickness towards the bottom of the shaft. The rock is porphyry, and the metal is incased in sulphate of baryta and quartz, which, being analyzed, would show a proportion of 6 marks (4 ounces to the mark) of silver and 6 ounces of gold to the load of 60 quintals.

Gold diggings of Huauta.—The valleys of Simariba and Acon, belonging to these provinces, are auriferous; but the superstition of the Indian tribes prevents works being established, *i. e.*, they believe that to extract the gold would destroy their crops and cause them to perish by starvation.

DEPARTMENT OF CUZCO.

The province of Pancartambo is the region whence the ancient Peruvians undoubtedly drew the enormous quantities of metal found in the capital of the Incas by the Spaniards, principally the district watered by the Mapacho, from its head waters near Ocongate down to Pancartambo, the chief town of the province. The predominant rock is slate, varying in different spots from talcose to micaceous, even clay slate merging into stiff clay overlying the slate.

Gold is almost always found in quartz. The latter is of varied aspect, more or less white in color, and compact, or again porous, and stained with limonite. Small veins of the above, and often very rich in gold, run through the slate. Toward the sources of the Mapacho, also known as Ocongate or Pancartambo River, according to the districts traversed, we find the following mines:

Huiscapata gold mine.—Situated on the right bank of the Ocongate, on a slight declivity near the village of the same name. The formation is argillaceous slate, almost alluvial in appearance and very friable. The principal shaft, sunk at a point where several lodes cross, is now blocked up, owing to the falling in of the superstructure. The lodes run east and west, and consist of porous quartz and oxide of iron. The Huiscapata mine enjoyed great prosperity during a period reaching over eighty years. A short time since, 10 yards of lode being laid bare and much gold in sight, a torrent of water flooded the mine in a few hours. A shaft was sunk to drain the same, but did not reach the flooded part. The owner sunk another shaft from a different point, but, not being an engineer by profession, spent his capital to little purpose, being met by land-slips at every step. Subsequent attempts were made to cut the vein in an easterly direction, but opinion gained ground that the mine can not be drained, the flooded galleries lying below the level of the river.

Carhuays gold mines.—These lie on the right bank of the river, within less than a league from Ocongate. This mine, recently discovered, is perhaps the only undertaking in permanent working order in the Pancartambo district. The auriferous quartz is very white, rather compact, and slightly translucent. It rarely shows traces of oxide of iron, but sometimes stains of sulphate of copper appear, and even grains of native copper are frequently encountered. The quartz does not form a true vein, but exists as a lode running parallel with the strata of argillaceous, talcose, and ferruginous slate. The lode of auriferous quartz runs almost horizontal in a northwest-southeast direction, and is from 20 to 25 centimeters thick. The amalgamating works in the neighborhood crush and work up an average of only 50 pounds of ore daily, which yield about 12 kilograms 5 grams of gold to the metric ton, or 150 marks (4 ounces to the mark) to the "cagon" of 60 quintals. The above is the maximum rate, great variations being observed in the quality of the ore. There are several other mines in the Pancartambo valley containing rich lodes of auriferous quartz, but which can not now be worked, owing to infiltrations of water at a depth of very few meters and the heavy rains. On the left bank of the Pancartambo stream, downwards 2 leagues from Ocongate, where the river Clalca falls into the Pancartambo, can still be seen the ruins of the amalgamating works of the Clalca mines, situated 3 leagues lower down on the right bank and now abandoned. Following the right bank, we find the cañon (ravine) of Machay pata, the scene of diggings which have made the fortunes of many miners. At Umana, near the Alcumbrera range, there are not only diggings, but veins of auriferous quartz which show gold of 23 carats. The best known are the washings of Lahuisto, now abandoned. Gold has also been found in beds of torrents and rivulets falling into the Mapacho in the neighborhood of Casipata, 3 leagues southeast of Pancartambo.

Chiripugnio gold mine.—This mine in the Clalca district is distant about 4 leagues from Pancartambo, on the bank of the Churo River. Work was begun upon a thin lode of quartz, which increased to a width of 10 centimeters, crossed in various directions by other lodes about 6 centimeters deep, consisting of white compact quartz devoid of pyrites, but with no gold in sight. The principal lode traversed beds of hard crystalline slate. The owner constructed a dam wherewith to wash the auriferous sand covering the top of the hill, but a land-slip ensued and the work had to be abandoned.

Inca Cancha gold mines.—The range bearing this name is situated about 2 leagues from Chiripugnio, between the rivers Quiseriuma and Guañamao, tributaries of the Churo River. The formation is argillaceous slate, shaling into thin flakes, with many faults. The auriferous quartz runs in irregular lodes, narrow or widening into pockets, filling the interstices of the slate. The gold from the pockets has, to a great extent, been extracted, and the best-known mines, now abandoned, and which at different periods produced a quantity of gold estimated at 3,000,000 soles, are La Descubridova, Merced, Santa Cruz, etc. Traces can be seen of canals, ditches, and troughs for washing the gold. Copper implements, such as chisels, dies, picks, etc., have often been found, and tend to show that the existence of this gold mountain was known at a period anterior to the Spanish conquest; but the absence of traces of an aqueduct along the upper part of the range renders it probable that the inhabitants only washed gold during the rainy season.

Churo gold diggings.—Reddish deposits of alluvial soil exist on either bank of the river, between Clalca and Pancartambo, about 3 leagues from the former. These beds extend to the foot of the Inca Cancha Mountain and form the bed of the Guañamo Creek, whence much gold has been extracted, together with ancient utensils, implements, etc. Recently the natives have been washing small portions of this earth, and two sample loads taken from the poorest parts produced nuggets averaging, respectively, 5 and 12 ounces of metal to the "cagon" (60 quintals) of sand.

Gold diggings of the Pancartambo Montana, i. e., wooded region.—The province of Pancartambo comprises auriferous districts on the eastern slope of the cordillera. The deposits consist mainly of alluvial soil and sand brought down by the rivers. Although the diggings extend over many miles, the region has been little explored and the work confined to the neighborhood of water-courses. The deposits would appear to extend in a north-northeast direction, near the Huacaca and Pucaia, the head waters of the Pilcopata River. The natives work the sand in troughs and barter the produce in exchange for goods; but it may be said that the region above mentioned is practically unexplored.

Cerro Carnante gold mines.—Work on these mines has been stopped, owing to repeated earthquakes and land-slips; but the "Gold Mountain" enjoyed fame during the Spanish conquest, and even of late years enterprising miners have sunk no small capital in this undertaking.

Gold mines of the Chumbivilcas Province.—There exist diggings near the Condoray range, in the Colquemavca district, from which as much as 2 arrobas (50 pounds) of pure metal have been washed in the course of a twelvemonth. The gold is very pure, and is sold on the spot at rates averaging $20 an ounce.

Paruro gold mines.—In this district various gold mines, especially at a spot called Virona, near Coyobamba, have been worked at different places, and are now abandoned, owing to the friable character of the rock occasioning frequent land-slips. Decomposed diorite forms the base of the mines, resting upon metamorphic rock.

DEPARTMENT OF APURIMAC.

This department was constituted some years since by separating the province of Andahuaylas from the department of Ayamcho and joining the provinces of Abancay, Cotabamba, Aymaraes, and Antobamba, in the department of Cuzco. Apurimac contains several important mines and diggings, such as Sañayer, Carpani, Muya-Muya, Milmienna, etc., for the most part abandoned.

Gold diggings of Huayllaripa.—The inhabitants of this village are busied almost exclusively with washing the auriferous sand accumulated on the left bank of the Pachachaca River, 4 leagues distant from Challhuama, chief town of the Aymaraes Province. Huayllaripa lies in the center of a depression of land, surrounded by alluvial deposits of no small extent. Descending towards the village, quantities of gravel conglomerate; rolled stones, such as porphyry, syenite, and quartz, cover the surface. The former predominates in an easterly direction, and the gravel is concentrated near the bottom of ravines. The auriferous alluvial soil consists of clay, somewhat ferruginous, interspersed with rolled stones and limonite; and the best known diggings, three in number, are Casamina (north), Santa Rosa (northwest), and Pampamima (south and east). The two latter alone are now worked, Santa Rosa all the year round and the others at seasons when water is abundant. Gold washing at Huayllaripa is carried on in the most primitive manner and with consequent waste. Water brought to the top of the bed runs in rills over the portions where limonite predominates, and, falling from a certain height, carries with it the auriferous sand, leaving vertical furrows in the mass of alluvium. These furrows communicate with canals on an inclined plane, in which are placed hurdles, covered with the roots of a grass called "ichu," and the water rushing down these canals leaves flakes of gold among the roots, which are then collected and placed in troughs to be washed. A further washing is accomplished by water driven through a canal lined with sheep's fleeces, and by this means any gold which may have escaped the preliminary operation is extracted. The fleeces are then washed a third time and the gold amalgamated with quicksilver. Any excess of the latter metal is disposed of by compression on cloths. These pellets are now calcined, the mercury disappears, and pure metal remains. Gold from Santa Rosa and Pampamima is of a bright yellow color and very pure, that from Clasamina being dull and of a less good quality and is found in small flakes. The contrary occurs at Pampamima, where the metal appears in the shape of nuggets, weighing from half a dram to 20 grams (two-thirds of an ounce troy).

The mines of the Huayllaripa district are more actively worked during the first three months of the year, *i. e.*, the rainy season, the production of gold rising in proportion with the quantity of water at the disposal of the miners.

Gold diggings of Ayahuaya.—This village is situated in the province of Antobamba, 10½ leagues from Challhuama, and is surrounded by diggings which have doubtless been worked by the ancient Peruvians, to judge by the ruins of an Inca settlement still extant. The geological formation is similar to that of the Huayllaripa region, but the subsoil is lighter and more friable. The principal diggings are Lambruschayoc and Marcacahuana, worked only by a few natives and with a very insignificant result, being only 250 ounces a year. Considering the extent of the diggings—and it must be noted that if, with such inefficient efforts, the results above mentioned are obtained—the profits arising from scientific work may easily be conceived to be considerable.

Washings of Auccampa.—The formation, consisting almost exclusively of limonite, or hydrated peroxide of iron, shows a proportion of 2.2 grams (30.86 grains troy) to the metric ton.

The remaining diggings in this province.—High up on the Tahara River banks extensive plateaus are known to exist. The country is, however, almost entirely uninhabited, owing to the extremely cold temperature.

Pachachaca diggings.—The river above named rolls much auriferous sand, especially in the upper portions, diminishing as the current becomes slighter and no longer carries the heavy particles of metal.

DEPARTMENT OF AREQUIPA.

This department may be considered one of the richest in the territory of Peru, more especially the province of Union, which may be said to rest upon an unbroken stratum of auriferous ore.

Huayllura mines.—Are situated in the Sengla district, near the Alcallara range. In the years 1829 and 1830 these mines produced enormous quantities of metal, even massive gold, and their reputation induced the settlement of some fourteen thousand miners in the neighborhood. The strata, much broken and irregular, present the aspect of quartzose gravel, almost vertical, in places, with metamorphic rock protruding. Of late years work has been carried on by isolated miners washing small quantities of ore, not exceeding 150 pounds of ore per diem, with poor results. The principal lode of the Copaeabona mine being almost vertical, it is believed that opening a shaft lower down would produce undoubted profit. Samples show gray copper ore, with no gold in sight; but, on analysis, present 8 ounces of gold, 35 marks of silver (4 ounces to the mark), and 7 per cent. of copper to the "cagon" (60 quintals) of ore.

Palamadera gold mines.—This mining center lies little less than a league from Huayllura, 12,600 feet above the level of the sea. The geological formation is very similar, and the lodes run almost vertical in an east and west inclination. The mine of Valencia shows gold in sight, and would offer profit. Other shafts in the neighborhood indicate former work. In this district, however, water is so scarce that work must necessarily be interrupted for long periods—

the ore, to be crushed and washed, is carried on mules to a plateau 6 miles distant. Specimens analyzed give a proportion of 16 ounces of gold to the "cagon" (60 quintals), equal to 166.6 grams (5½ ounces) of gold to the metric ton. Gold is found here in quartzose gravel, or quartzile combined with small crystals. The best-known mines in the two regions of Huayllura and Palmadera are San Roman, Santa Rosa, Capacabana, Trinidad, Rosario, Santa José, Alvarado, Jago Pucullani, etc.

Montesclaros gold mines.—These well-known mines were worked during last century with great profit. In 1783 a land-slip, occasioned by an earthquake, caused the main shaft to fall in. At subsequent periods attempts were made to clear the débris, but with no success. Recently a national company was started with the help of foreign capital, principally English, and it is understood that great results may be anticipated with improved machinery. Specimen ore shows a proportion of 8½ ounces of pure metal to the "cagon." The strata at Montesclaros differ in appearance and position from those of Huayallura and Palmederas. Gravel is wholly absent; but, on the other hand, dark slate and eruptive rocks, lava, porphyritic trachyte, etc., are of frequent occurrence. The lode runs almost horizontal, and consists of quartz, with copper pyrites and sulphate of baryta. Besides the three above-mentioned districts, numerous gold mines exist and are worked by private enterprise; but little is known even of their exact locality, on account of the difficult communication in an almost uninhabited province.

Picha gold mine.—On the right bank of the Cotahuasi, 2 leagues from Chaccana, the specimen of lode extracted consists mainly of auriferous sulphuret of lead, and runs vertically through dioritic rock. On analysis it was found to contain 41 grams of gold and 492 grams of silver to the metric ton, lead being prevalent to the extent of 50 per cent.

Huanzo gold mines.—Near the village of Antobamba, in the Huaynacota district, along the Huanzo range, are traces of now abandoned gold mines. Gold is here found incrusted in copper ore. These mines are not worked, owing to the numerous and dangerous land-slips, caused by the rapid current of the river over a bed of loose stones. An old shaft opens above the level of the river, and the natives, when driven by necessity, extract small portions of ore by means of shovels attached to long poles, not venturing to enter the shaft, all props having long disappeared. The ore is limonite, containing native gold almost pure, and is washed in troughs.

Parapapa gold mines.—Also in the Huaynacota district, 3 leagues from Cotahuasi, upon the "Puna," there is a high plateau. An important lode has been worked at distinct periods, but is now abandoned. Recently one day's work produced over 2 ounces of gold, but no progress could be made on account of the insecure condition of the galleries.

Huayllapana gold mines.—This mining region adjoins the district of Pampamarca, and contains many mines, but not scientifically worked, whence the natives draw small quantities of gold by destroying the supports of the galleries, thus causing much damage. The gold is far from pure, containing, as it does, 25 per cent. of silver.

Coxchic gold mines.—Some 5 leagues from Huaynacota and 4 leagues from Huanzo we find the high plateau of Coxchic, containing numerous lodes still untouched and fine pasture ground for llamas.

Ocacuro gold mines.—In the Alca district, some 8 leagues from the village of the same name, several mines and crushing mills worked by hand produce fair profits.

Gold mines in the Condesnegos Province.—Near Orcapampa, in the Salamanca district, the best known mines are Ararihua and Guiquimbo. They are now abandoned, the extreme hardness of the ore extracted leaving too small profits.

Gold mines of the province of Arequipa.—Although Arequipa can not be considered among the most auriferous territories of Peru, some valuable mining property, however, yet exists.

Cachenda Ravine.—Specimens of the ore consist of silicate of iron stained with copper. Gold exists in small proportions, which renders washing to extract the precious metal from the crushed ore an expensive operation, the proportion of gold reaching 9 ounces to the metric ton. Quartzose rock with copper stains, analyzed, shows 8 ounces of gold to the ton.

Vitor gold mine.—Some 6 leagues from Vitor, towards Siguas, we find a mine remarkable for the quality of the ore—reddish aragonite, with crystals of quartz, in which the gold protrudes in small flakes and great abundance.

Guisharani and Huasamayo mines.—These mines have not been extensively worked, but the ore is undoubtedly of good quality. Crushing mills were at work at Guisharani, on the left bank of the river, but are now abandoned.

Gold mines of the province of Camana.—This province contains several mines, especially in the Achatayhua and Huaun-huaun ranges; in the latter the Santa Rita mine is the best known. Four leagues distant from the port of Chala the Lucmila works produce good results, but by far the richest portion of the province lies in the Posco region.

Gold mines of Posco.—This district, although inefficiently explored as yet, has been worked during many years. The principal mines lie some 9 leagues from Caraneli, in the direction of Ocoña. The shafts are sunk very deep, and numerous galleries cross the same lode, which inclines in an easterly direction. Veins of quartz are found in a sagenite rock, presenting a somewhat talcose aspect. The ravine of Posco is very narrow and forms the bed of a small torrent, which feeds the hand-mills for crushing the ore. The gold generally drawn from Posco is of a whitish color and not very pure. Very good specimens have, however, been obtained from other mines in the same district.

DEPARTMENT OF PUNO.

Two provinces only of the department of Puno contain gold mines of any importance—Carabaya and Sandia, on the furthest southern boundary of Peru, close to the Bolivian frontier, and separated from the rest of the Republic by a high range of snow-clad peaks, Illimani and Sorata. No roads exist; such tracks and paths as do not disappear under brush-wood are too steep to be traversed otherwise than on foot. The gold mines and diggings of Carabaya are mentioned by ancient historians as the origin of the Inca riches, among which a gigantic nugget, weighing 4 arrobas (1 arroba = 25 pounds), extracted from the diggings of the Inaharaya ravine, and another of the shape of a man's head were seen by the historian Garcilaso.

Gold mines of the province of Sandia.—In this province, formed of portions of the Carabaya and Huancané districts, gold is found not only in quartzose formations, but also in sandy alluvial deposits. The principal mines and diggings are as follows:

Gold mines of the Poto district.—This district lies on the southern slope of the eastern range of the cordillera. The climate is very cold, owing to the great height above the level of the sea, near the source of the Crucero River. The gold is found disseminated in strata of a grayish color, consisting of quartzose rock, slate, and metamorphic sandstone, together with limestone, distinguished by its color from other auriferous deposits, which are generally reddish in appearance. These deposits extend from the nevados of Conumi and Ananea towards the village of Poto, covering some 3 leagues of ground. No large nuggets have been found in this region, the largest weighing about 1 dram. Work is extremely difficult and costly for want of water, notwithstanding the proximity of snow-covered ranges of mountains. A small lake situated at the foot of the Conumi provides water carried along an aqueduct a distance of 3 leagues to the "Cocha de Pampa Blanca" lagoon, which feeds two other lagoons and provides the necessary water. As a consequence of this scarcity a system differing from that in use in other provinces has had to be adopted. Several shafts are sunk at short distances from each other; apertures are then made in the pillars, so that the different galleries shall communicate, and by degrees these are cut away, and the débris falls into a sort of canal, where the miners break the ore in small enough pieces to be carried down by the water—an operation repeated in the amalgamating works.

Ananea gold mines.—These mines are situated on a still higher level, some 3 leagues northeast of Poto, at an altitude of 5,120 meters. The shafts of abandoned mines are filled with water turned into snow and ice. Lodes of quartz have been discovered in some dark-colored rock protruding through the snow, and in which gold appears in small flakes and in sight. The mines filling with water has been the cause of the abandonment of these rich deposits.

Aporoma mining region.—The principal mines of this region are San Geronimo, San Barnabé, San Juan, and Mirabella. Ample proof exists of the value of these mines in a fine road and an aqueduct 6 miles in length cut through the hard rock. Much gold has been extracted, and the depth of the shafts and consequent expense render working these mines unremunerative. Nevertheless, of late years isolated miners have returned to this district, which is situated on the slope dividing the rivers Machicamani and Pulipuli, which rise from the snow range and form the head waters of the Inamvari.

Challuma gold diggings.—In the year 1859 some laborers sent by Señor Poblete de Coaza to gather "cascarilla," *i. e.*, bark of the guina tree, encountered numerous traces of gold in the sandy bed of this ravine. The news spread, and a prosperous settlement became the center of commercial activity in this distant part of the Republic. The quantity of gold was so considerable that the pure metal used to be weighed for sale in large scales like any ordinary merchandise. The auriferous deposits discovered at that period lay, for the most part, in the valley of the Challuma River, and that of its affluent, the Pucamayo. The diggings of Pusupunco, San Simon, Cangali, Cementino, and Altagracia, whence one trough containing 15 pounds of sand produced 13 ounces of gold, and lastly, Quimsamayo, are the best known. Nuggets varying in weight from 27 to 29, 36, and 40 ounces have been found in the valley of the Pusupunco, at the settlements of Natividad, Tablahuasi, San Pedro, etc. The deposits vary in depth and appearance. The strata, containing arsenical iron pyrites and hematite, are generally found to contain much gold, sometimes in flakes and even in large nuggets. Great variety naturally exists; sometimes the barren stratum is only 2 or 3 meters thick, reaching, also, to the depth of 80 or 100 feet. The quality of the metal may be considered unusually fine, ranging over 23 carats. The proportion on assay is the following, taken from a nugget weighing 10 grams:

Gold	96.46
Silver	2.50
Copper	0.04
Iron	0.30

The method followed for working the diggings of Pucamayo and Challuma is somewhat primitive.

On the spot selected the brush-wood is cut away and the barren stratum removed by water-power. The auriferous deposits being laid bare, water is brought along an aqueduct from the river, terminating in a cistern provided with locks; the latter being filled, these are opened, and the torrent flows with considerable force along rills cut in the conglomerate, carrying away the sides, an operation assisted by workmen with picks and shovels. When a sufficient quantity of earth has been detached, all the larger stones and pebbles are separated, and the residue brought to the mills to be carefully crushed and strained through fleeces and the roots and fiber of a tree fern known on the spot by the name of "sano-sano." This operation is repeated until the sand, on minute examination, presents no longer any trace of metal.

Montebello gold mines.—Near the head waters of the Pucamayo, a tributary of the Inamvari, lies Montebello, a mountain containing several mines of undoubted wealth. Another lode, called Sacramento, traverses the range in a southeast-northwest direction, following the inclination of the strata of slate, which is the principal formation; and the third follows a ravine south-southwest of the hill, and dips at an angle of 35°.

The quartz in this district presents varied aspects, sometimes pure white and compact. Other specimens show reddish stains of oxide of iron; but the most valuable quartz, and also the most common, and which denotes the presence of a large proportion of gold, is that covered with blackish specks formed by arsenical pyrites. The value of the ore extracted is, of course, very unequal. Quartz with no gold in sight crushed produces 60 to 120 grams to the metric ton, whereas other lodes have given as much as 200 to 500 grams (equal to 1 pound) of gold to the ton. A curious singularity of the ore of this region is the large proportion of iron, which, although not reaching 1 per cent., is yet larger than the amount observed in other parts of the Republic. Until lately the ore was crushed in small hand-mills and amalgamated with quicksilver. Subsequently a mill with several stamp-heads worked by water-power was set up at great cost, owing to the difficulties of transport, and was only in operation a short time, repairs on the spot being out of the question. Since the miners have returned to the antiquated system in use in most Peruvian mines.

Gold diggings of the Huari-Huari River.—It may be said that all the rivers in the province of Sandia roll auriferous sands, the best known being the Pulipuli, Ccapacmayo, Pacchani, Challuma, and Inamvari. Miners unprovided with capital limit themselves to washing the sand in troughs containing about 15 pounds. During the dry season, that is to say, from June to October, the volume of water diminishes and immense sand banks remain uncovered. The natives place flat stones along these spaces in a manner resembling the tiles of a roof and in the direction of the current, so that the water running between the same deposit the heavier flakes of gold in the interstices. This operation is an easy, inexpensive, and remunerative one. It has been calculated that on the banks of the Inamvari a square vara (1 vara=32 inches) produces, more or less, 2 drams of gold. The gold in this region is of superior quality, the following being the proportion observed:

Gold	97.30
Silver	2.40
Copper	0.03
Iron	0.05
Various	0.22
Total	100

Gold mines of the province of Carahaya.—It would appear that even the superficial soil of this province is traversed by veins of gold; but the districts which hitherto have produced the largest quantities of metal, whether gold-dust, flakes, or nuggets, are Allachea, Ayapata, Juata, Caasa, and Usicayos.

In the district of Ayapata gold is extracted from diggings on the banks of the rivers Pigniliri and Cagatiri, tributaries of the Inamvari. Juata is known for the diggings of the Mucumayo, also a tributary of the Inamvari, where the nuggets attain a considerable size. Mention is made of a nugget found in 1851 weighing 49 ounces 7 drams. The Caasa district is almost unexplored. The Antuino River becomes dry during the months of July and August, and the retreating waters leave uncovered large sand banks, where the natives, mostly savages, extract what they can by primitive means. The Indian tribes are suspicious, and it may be said that miners enter this region at the peril of their lives. The cañon of Anccocala contains several mines almost entirely abandoned. In the district of Usicayos the cañon Macho Cotuma has produced large quantities of gold, and the inhabitants also busy themselves in washing the sands of the Inamvari.

The province of Azaufaro is unexplored, but there is no reason to suppose that the characteristic signs of the existence of auriferous quartz are absent or form an exception to the general condition of the country.

In conclusion, it may be said that the entire subsoil of Peru presents an almost unbroken net-work of auriferous lodes. The obstacles to working the deposits are in some parts almost insuperable—want of water, inaccessible peaks, severe climate, and, lastly, total absence of internal communication. It is to be hoped, though, that within a few years a peaceful government may bring about the commencement of an era of mining prosperity for this country.

CURING BACON AND HAMS IN IRELAND.

REPORT BY CONSUL REID, OF DUBLIN.

BACON.

The consular agent at Limerick having found it impossible to obtain the information called for by the Department, the undersigned has visited some of the bacon-curing establishments in Dublin, and has collected information upon which to base a report, which, it is hoped, will answer as a reasonable substitute for the report called for by the Department, especially as the methods employed in the establishments in Dublin are substantially the same as are in use at Limerick.

The following information covers the points submitted by the Department and in the order given:

Supply.—Each establishment depends for its supply upon the country immediately surrounding, reaching over a greater or less area, through expert buyers, according to the demand and supply.

Breeds.—The breed that is most preferred by curers is the Berkshire. This breed is doubtless more largely grown in the vicinity of Limerick than in any other section of Ireland, largely through the efforts of the curers there. They have made special and vigorous efforts to secure its general introduction among the farmers, distributing—in many instances gratis—breeding animals among the farmers. As a rule, curers prefer pigs of the age of about nine months and from 126 to 140 pounds in weight.

Care, food, and management.—The conditions that prevail under this head are not essentially different from the rules generally observed. A hog is a hog in Ireland, the same as in other parts of the world, and his requirements are about the same. However, it may be said that he is more hospitably treated here than elsewhere. Besides the offal of the farm, when the fattening process begins the food used is turnips, potatoes, and meal, being first cooked and converted into a common mess.

Manner of killing.—The pig is elevated by machinery by the hind legs, the body being free. The knife is then inserted in the throat so as to pierce the heart. The blood is thus drawn quickly and completely. The carcass is then moved along a few feet, where it is scalded and the hair removed in the usual way. Thence it goes to the man who removes the entrails, the entire process, of course, being very rapid. The carcass is then weighed, when the backbone is cut out.

Manner of curing.—The carcass is next taken to the chill room, where the temperature is 38°, and where it remains over night for the purpose of removing all animal heat. Thence it goes to the tables to be cut up, when each part is taken to a particular department to have the curing process completed upon it.

Curing the bacon.—The part classed as bacon includes the side of the carcass and the shoulder, the latter part being finally detached, however, and termed as the "gam" in market parlance. The initial proceeding of the airing process is to force brine into the shoulder part. This is done by means of a force-pump communicating with a small hose and terminating in a needle-like nozzle, which is rapidly inserted in a dozen different places around the shoulder bones. The purpose of this proceeding is to perfectly cure the parts that can not be reached by surface application of salt. The side pieces are then piled up, cob-house fashion, each piece being covered with salt. In this position they remain four or five days in a room having a temperature of 40° to 42°. The sides are then transferred to another room having the same temperature, where the shoulders are cut off with one blow of a cleaver, and in which they remain about ten days.

The next step in the curing process is to place the sides and shoulders in tanks of water, where they are steeped for ten or twelve hours for the purpose of removing all the salt and to give them a light color. They are then thoroughly scraped and cleaned. They are then hung up and smoked two or three days. The smoke is produced by slowly burning turf and sawdust beneath. The bacon and gams are then ready for the market.

HAMS.

After the hams leave the cutting table they go to a curing room having a temperature of 42°. They are laid in rows closely together upon a stone floor. They are then covered with salt and a sprinkling of saltpeter. The salt is forced in by men walking over the surface. They remain in this position four or five days. They are then stacked up in piles in the same room, where they are left fifteen days. They are next dipped in tanks of water to remove the salt, after which they are placed in large piles, where they remain for two weeks in a natural temperature. The next step is to hang up the hams in an open loft with a natural temperature, where they remain from two to three weeks to be air dried. Then they are transferred to another room, where they are slowly dried for a week by the heat generated by steam pipes in a temperature of 80°. After being removed from this room the face of the ham is dressed smoothly with a knife. They are then suspended in a smoke house for about ten or twelve hours. They are smoked more or less thoroughly, according to the demands of the market for which they are designed. They are but slightly smoked for the French market. The product designed for the British, Scotch, and Irish markets is two or three shades darker than in the former case, this result being determined, not by smoking them more hours, but by reason of subjecting them to greater density of smoke.

WHERE THE PRODUCT FINDS CONSUMPTION.

The ham and bacon product of Ireland finds a market in Ireland, England, Scotland, and upon the Continent. It is impossible to get correct statistics as to the proportions consumed in each of these several markets. It would not be far from the truth, however, to say that three-quarters of the product is exported from Ireland. The fattest bacon is shipped to Glasgow,

PRICES.

The prices, of course, vary. The average wholesale price of bacon in the home market is about 72*s.* per 112 pounds; of hams, from 98*s.* to 102*s.* per 112 pounds. The retail price of bacon in the local market ordinarily is 9*d.* to 10*d.* (18 to 20 cents) per pound; of gams, 5*d.* (10 cents) per pound; of hams, 10*d.* to 13*d.* (20 to 26 cents) per pound. The wholesale price of the Limerick products, as to hams and bacon, averages about 4*s.* (96 cents) per 112 pounds more than the price which the Dublin products command. This difference, as nearly as I can ascertain, is explained, not by the superiority of the Limerick over the Dublin product, but by the prestige which the Limerick goods acquired in former years and the effect of which is still apparent. As before stated, the process of curing is substantially the same in both cases. This is the testimony of retail dealers, who handle both kinds of goods and make about the same profit in one case as the other. The same testimony is also given by consumers.

The retail price of American hams in this and other Irish markets is from 6*d.* to 7*d.* (12 to 14 cents) per pound, or about a third less than the local product commands. This is the case where they are sold as American goods; but, as the result of careful investigation, I find that one of the chief pork-packing concerns at Limerick buys great quantities of American hams in the cured state, smokes them, impresses its own brand upon them, and places them upon the market at a price only a trifle below what it asks and receives for its own goods. Manifestly it is for the interest of the American producer, if he would extend his European trade, besides endeavoring to make his curing process more perfect, not to dispose of his goods to his immediate competitor, who robs him of a profit to which he is entitled, but to offer his goods to the legitimate dealer under his own brand, and to wage his war upon these lines to the end. The merit of his product will command just recognition in the end, and the American hog, so long unjustly discriminated against, will push his way into the front rank of his various competitors upon this side of the ocean.

ALEX. J. REID,
Consul.

UNITED STATES CONSULATE,
Dublin, September 18, 1890.

THE RICE CROP OF JAPAN.

REPORT BY VICE-CONSUL-GENERAL SCIDMORE, OF KANAGAWA.

I have the honor to report that returns to this date from the rice-producing districts of Japan concur in estimating the yield of rice this season as unusually large. Thirty-five million koku (173,701,500 bushels) is a good average crop, but this year as much as 50,000,000 koku (248,145,000 bushels) will probably be produced. If this estimate be realized, the quantity of rice available for export will not be far short of 15,000,000 koku (74,443,500 bushels), which is believed to be more than America and Europe can possibly take, and is about ten times as much as the largest export hitherto made in any one year from Japan.

G. H. SCIDMORE,
Vice-Consul-General.

UNITED STATES CONSULATE-GENERAL,
Kanagawa, September 23, 1890.

WOOLEN INDUSTRY OF EASTERN BELGIUM.

REPORT BY CONSUL DANFORTH, OF LIEGE.

The chamber of commerce of Verviers publishes a report, from which I take the following facts and figures:

At the first public auction at London, the 10th of April, there was a falling off in the price of wool of about 5 per cent. It must be understood that London is the principal woolen market and that the London prices furnish the standard for the market of France and Belgium. Later, on the 24th of June, another fall occurred of 7½ to 10 per cent. for merino wool and 5 to 7 per cent. for other kinds. The fine qualities from Australia, mostly sought for America, have not changed. The last London sale included 400,000 bales and closed on the 1st of August.

WOOLEN YARNS.

In spite of the low prices in wool, the Belgian spinners have worked much less, and especially in the line of exportation. France did not take any thing; Germany and Australia asked for less than in former years. England alone had for the months of April, May, and June 345,000 kilograms, or 24 per cent., less than at the same time in 1889, as is seen by the following table:

Month.	1889.	1890.
	Kilograms.	*Kilograms.*
April	498,681	422,986
May	530,692	459,681
June	567,378	368,927
Total	1,596,751	1,251,594

Prices are very unsettled, and go up or down according to the orders the spinner has at hand The falling off in prices may be considered from 5 to 7 per cent. In combed woolen yarn the decline has been about 8 per cent.

TISSUES.

The trade in tissues for the home market was much affected by the bad weather; the orders from foreign countries, too, were less, and the falling off in exportation to certain countries was very marked. English manufacturers, as a rule, follow the movement of the prices in raw wool, and have several times notified the trade of the decline of prices. Buyers desire Belgian manufacturers to do the same. But in Belgium another principle is followed. At the beginning of the season the producers agree upon fixed and invariable prices; but in doing so they anticipate the possible fluctuations in the value of raw wool. The chamber of commerce advises the manufacturers to continue this policy of a fixed rate, although foreign competition is for the moment pressing hard the Belgian market.

WOOL WASHING AND CLEANING.

This kind of industry, which constitutes one of the principal branches in the woolen manufacture of Verviers, has suffered much from the uncertain and irregular way in which orders have been received. The high price of coal and chemicals has increased the difficulty. However, improvements in the processes of washing and of chemical cleaning are securing orders from the most important foreign firms.

Table showing the Belgian imports and exports of woolen goods.

Description.	Imports.			Exports.		
	1890.	1889.	1888.	1890.	1889.	1888.
Woolen yarns:	*Kilograms.*	*Kilograms.*	*Kilograms.*	*Kilograms.*	*Kilograms.*	*Kilograms.*
June	65,790	77,080	82,370	1,137,250	1,119,240	1,199,180
First six months	405,760	447,450	434,130	5,854,070	6,227,380	6,107,390
Whole year		928,270	890,690		12,633,590	11,994,090
Woolen tissues, cloth, cassimeres, and similars:	*Francs.*	*Francs.*	*Francs.*			
June	138,890	72,040	101,330	141,870	125,560	89,240
First six months	1,194,720	1,040,930	1,030,130	757,360	619,110	713,000
Whole year		2,182,110	2,221,900		1,367,720	1,457,950
Coatings, duffels, and other heavy tissues:						
June	124,620	117,840	101,340	11,690	43,820	35,600
First six months	749,690	766,960	770,650	90,210	153,860	134,980
Whole year		1,763,450	1,423,430		382,270	267,770
Light tissues:						
June	1,008,720	1,078,070	1,028,530	83,390	73,220	84,350
First six months	8,217,530	7,732,910	8,382,010	354,400	361,670	324,850
Whole year		15,510,180	16,174,830		692,570	587,690

JAMES R. DANFORTH,
Consul.

UNITED STATES CONSULATE,
Liege, August 11, 1890.

Exports from Havre to the United States.—The direct exports from this consular district to the United States during the quarter ended September 30, 1890, amounted to $1,463,268, showing an increase of $27,516.65 over the entire fiscal year ended June 30, 1890.—OSCAR F. WILLIAMS, *Consul, Havre, October 1, 1890.*

MEXICAN-SPANISH CONVENTION BONDS.

REPORT BY MINISTER RYAN, OF THE CITY OF MEXICO.

I have the honor to forward herewith, for the information of the Department, clippings (with translation) from the Diario Oficial relating to a contract between the Mexican treasury department, in the name of the Executive, and Lic. Pablo Macedo, representative of the majority of the holders of bonds of the Spanish convention, for the purpose of the conversion of the old obligations under said debt by bonds of the new issue of the domestic consolidated debt, in the form and under the conditions therein stated, together with the decree of the Mexican Government approving said contract.

THOMAS RYAN,
Minister.

UNITED STATES LEGATION,
Mexico, June 5, 1890.

CONVERSION OF SPANISH CONVENTION BONDS.

[Inclosure 1 in Minister Ryan's report.—From Diario Oficial, May 31, 1890.]

DEPARTMENT OF STATE AND BUREAU OF FINANCE AND PUBLIC CREDIT, MEXICO—SIXTH SECTION.

Porfirio Diaz, constitutional President of the United Mexican States, to the inhabitants thereof, know ye:

That the Congress of the Union has seen fit to decree the following:

"The Congress of the United Mexican States decrees—

"SOLE ARTICLE. The contract made between the treasury department, in the name of the Executive, and Lic. Pablo Macedo, representative of the majority of the holders of bonds of the Spanish convention, is hereby approved, for the purpose of the conversion of the old obligations under said debt by bonds of the new issue of the domestic consolidated debt, in the form and under the conditions set forth in the said contract.

"BERNABÉ LOYOLA,
"*Speaker House.*
"FELIPE ARELLANO,
"*President Senate.*

"JUAN DE DIOS PEZA,
"*Clerk House.*
"J. DE TERESA MIRANDA,
"*Clerk Senate.*"

I therefore order that the same be printed, published, circulated, and that due compliance be given thereto.

Done at the federal palace in Mexico on the 30th of May, the year one thousand eight hundred and ninety.

PORFIRIO DIAZ.

To C. JOSÉ ANTONIO GAMBOA,
Sub-Secretary in charge of the Bureau of Finance and Public Credit.

TRANSLATION OF CONTRACT.

[Inclosure 2 in Minister Ryan's report.]

DEPARTMENT OF STATE AND BUREAU OF FINANCE AND PUBLIC CREDIT, MEXICO—SIXTH SECTION.

Contract entered into between C. Lic. Manuel Dublán, secretary of state and of bureau of finance and public credit, in the name of the Executive, and Lic. Pablo Macedo, representative of the majority of the holders of bonds of the Spanish convention, amply authorized to that end by the parties in interest as evinced by the power of attorney accrediting him.

ARTICLE 1. C. Lic. Pablo Macedo, in the name of the holders of bonds known as the Spanish convention, whom he now represents, or may hereafter represent, declares: That he accepts the law of the Government of the Republic of June 22, 1885, for the arrangement and conversion of the national public debt, which, in its nineteenth article, provides that the bonds of said convention are convertible in the form and under the conditions set forth in their present contract.

ART. 2. The bonds styled of the "Spanish convention," issued pursuant to agreements entered into on December 6, 1851, and November 12, 1853, between the Government of the Republic and the Government of His Spanish Majesty, shall be merged into the common fund of the domestic consolidated debt exchangeable for bonds of new issue in a proportion of 145 per cent. of their nominal value, inclusive of all the interest accrued to date. Consequently, for each $100 in bonds of the convention of 1851, with the respective coupons, counting from the coupon maturing on December 4, 1867, and for each $100 in bonds of the convention of 1853, with their unpaid coupons, reckoning from the coupon falling due August 14, 1860, the parties interested shall receive $145 in new bonds of domestic consolidated debt, with their corresponding coupons, dating from July 1 of the current year.

ART. 3. This contract shall be submitted for the approval of the Congress of the Union, and, upon acceptance thereby, the bureau of the management of the public debt shall proceed in stipulated proportion to convert the bonds styled of the "Spanish convention," presented therefor by C. Lic. Pablo Macedo.

Done at the city of Mexico, on the 1st of May, the year one thousand eight hundred and ninety, and drafted in two originals, one for each contracting party.

M. DUBLÁN,
PABLO MACEDO.

I certify the foregoing is a true copy, etc.

J. A. GAMBOA,
Sub-Secretary.

TRADE OF COREA.

REPORT BY CONSUL-GENERAL HEARD, OF SEOUL.

Imports are taken in proportion to the sale of exports and exhibit a very satisfactory increase. A very large proportion of the total trade of Corea is conducted by Japan. The interest of Americans is almost confined to drills, jeans, and kerosene, each of which exhibits marked improvement. Russian kerosene is not in favor.

American sheetings are too good for the market, and, until our manufacturers lower the quality and cost by the addition of sizing, they will be unable to compete with English makes. The total net revenue for 1889, which was a great improvement on former years, was $279,999.76; the net revenue for the first six months of 1890 was $269,447.09, or only $10,552.67 less than for the whole preceding year.

AUGUSTINE HEARD,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Seoul, September 9, 1890.

BEER IN THE PHILIPPINE ISLANDS.

REPORT BY CONSUL WEBB, OF MANILA.

One would hardly expect to find a beer-drinking community in this part of the world, where it is natural to suppose that all heating and stimulating beverages would be avoided; but it is safe to say that there is no city of its size in the East where as much beer, ale, and porter are drank as in the capital city of the Philippine Islands. The idea prevails among the European residents that stimulants are necessary in order to counteract the debilitating influence of the climate, and malt liquors are considered the least harmful of all the stimulating beverages, except, perhaps, pure claret, which is hardly to be found here. Malt liquors, too, have another advantage: as all that come here are in bottles, there is no chance for the dealers to adulterate them, as the Chinese merchants particularly are in the habit of doing with every kind of food and drink which can be increased in quantity without any evidences of it appearing in the original packages.

Another reason why beer is popular among the money-making Europeans, whose manners and habits are imitated by the better classes of mestizoes, is that it is expensive. A small bottle holding considerably less than a pint sells for 50 cents, and a half-pint bottle costs 25 cents. Thus beer becomes an aristocratic drink, and no householder has any valid claim to social eminence unless he offers it to his guests.

American beer has never found a foot-hold here, it having lost its reputation on a large consignment of cheap stuff shipped here some years ago and found to be flat and sour when it was opened. Hence it is quite generally believed that American beer will not keep in this climate. The vast quantities of beer imported come almost entirely from Germany, while the ale and porter is brought from England. Tall stacks of empty bottles can be seen in the rear of the residence of almost any European, and the borders of flower beds and garden walks are formed of beer bottles set closely together and sunk, upside down, half-way into the ground. The thousands of empty beer bottles to be seen during a short walk or ride about the city are sufficient to indicate the character of the popular beverage. Were it not that the cost of living in Manila is enormously beyond that of any other city in the East, people would refrain from drinking beer rather than pay 50 cents a glass for it; but, until recently, the price has not been discussed to any extent.

About a year ago Mr. Henry M. Barretto, an old and wealthy resident who has the speculative instinct largely developed, conceived the idea of supplying the demand for beer at much lower prices than were then and now being paid. He obtained a license from the Government and proceeded to erect the first brewery in the Philippine Islands, which was completed recently, and will, it is expected, begin to turn out beer about the 15th of next month. The new brewery is situated at Malacanan, not more than 500 yards from the governor-general's palace, and is on the west bank of the river Pasig, which will give it an abundant supply of pure water. The large and substantial building is divided into two sections, in one of which is the refrigerating apparatus and three engines, one of 30 horse-power and two of 10 horse-power. The refrigerator is said to be of the latest design, and came from London, which city also furnished the rest of the beer-making machinery. In the second section is the machinery for making beer after the German system, with which it is expected to turn out 40 barrels per day at first. The malt will come from San Francisco, via Hong-Kong, every ten days, which will insure its being fresh; and the proprietor of the enterprise declares that he will be able within a few months to turn out as good a quality of beer as can be found in Europe and America at less than half the price at which European beer can be bought here now. If he can do so, he will realize a great deal of money.

He expects to have Culmbacher beer ready for delivery about the 15th of September, and later on will begin the manufacture of ale and porter. The beer will be sold in half and quarter barrels, as well as in bottles, and, if the brewer's expectations as to quality are realized, his venture will work a revolution in the beverage trade of Manila. Mr. Barretto has invested a large amount of capital in the enterprise—how much he is not willing to make known, but it can not be less than $50,000. If it is successful, other breweries will undoubtedly be erected in Manila, as well as in Iloilo and Cebu, and Philippine beer may ultimately find its way to other countries.

ALEX. R. WEBB,
Consul.

UNITED STATES CONSULATE,
Manila, August 25, 1890.

THE WHEAT HARVEST OF FRANCE.

REPORT BY CONSUL GRIFFIN, OF LIMOGES.

There has been just published officially the estimate of the wheat harvest in France for the present year. The crop last year was considered small and very poor, but the yield for 1890 is still inferior, although the promise of spring was very fine. The long-continued rains coming just before the harvest and lasting through the entire season have given not only a lesser, but a poorer, crop than last year.

Table showing the surface or acreage sown.

Region.	Surface sown.		Difference between 1890 and 1889.
	1890.	1889.	
	Hectares.	*Hectares.*	*Hectares.*
Northwest	765,700	782,943	—17,243
North	1,211,000	1,219,031	— 8,031
Northeast	565,360	563,795	+ 1,565
West	1,196,100	1,201,177	— 5,077
Center	759,580	759,669	— 89
East	808,380	807,060	+ 1,320
Southwest	807,520	813,728	— 6,208
South	459,505	474,886	—15,382
Southeast	522,350	523,727	— 1,377
Corsica	14,200	14,016	+ 184
Total	7,107,594	7,160,032	—52,438

Table showing the yield per hectare.

Region.	Yield per hectare.		Difference between 1890 and 1889.
	1890.	1889.	
	Hectoliters.	*Hectoliters.*	*Hectoliters.*
Northwest	13.15	15.41	—2.26
North	19.45	23.22	—3.77
Northeast	16.77	16.14	+0.53
West	13.46	13.36	+0.10
Center	16.85	17.73	—0.88
East	16.38	14.29	+2.09
Southwest	12.35	11.23	+1.12
South	13.60	10.76	+2.84
Southeast	14.08	12.31	+1.77
Corsica	15	17.15	—2.15
Average	15.41	15.57	—0.16

Table showing the general yield.

Region.	Yield.		Difference between 1890 and 1889.
	1890.	1889.	
	Hectoliters.	*Hectoliters.*	*Hectoliters.*
Northwest	10,650,400	12,664,739	—1,414,339
North	23,556,200	28,304,603	—4,748,403
Northeast	9,416,200	9,109,014	+ 297,186
West	16,105,800	16,041,848	+ 63,952
Center	12,803,570	13,486,190	— 682,620
East	13,347,000	11,512,224	+1,834,476
Southwest	9,973,350	9,140,325	+ 832,825
South	6,246,005	5,111,715	+1,134,290
Southeast	7,356,900	6,449,262	+ 907,638
Corsica	213,000	240,208	— 27,208
Total	109,663,425	111,460,288	—1,791,863

In this amount of 109,668,425 hectoliters there is not only a loss of 1,791,863 hectoliters, but, owing to the inferiority of the crop, 7 per cent. of the total yield is unfit to be ground into flour, leaving only 101,889,286 hectoliters as the real crop for 1890.

Another thing to be noticed is the inferiority in weight. The hectoliter of 1889 weighed 77.2 kilograms, while that of 1890 weighs only 76.6 kilograms. The following table gives the comparison between this year and last:

Description.	Quantity usable.	Average weight per hectoliter.	Weight.	
			Total.	Ground into flour at rate of 74 per cent.
	Hectoliters.	*Kilograms.*	*Met. quintals.*	*Met. quintals.*
Harvest of 1889	101,889,286	76.6	78,051,853	57,760,591
Average harvest for the last 10 years	107,300,000	77.5	83,312,500	61,651,290

The general returns of all other cereals for the year 1890 are as follows:

Grains.	Surface sown.	Yield.	
		Per hectare.	Total.
	Hectares.	*Hectoliters.*	*Hectoliters.*
Meslin	293,500	15.10	4,431,850
Rye	1,665,000	15.80	26,307,000
Oats	3,700,000	23	85,100,000
Barley	1,010,000	17	17,170,000
Buckwheat	709,000	19	13,471,000

WALTER T. GRIFFIN,
Commercial Agent.

UNITED STATES COMMERCIAL AGENCY,
Limoges, September 25, 1890.

THE ST. CLAIR TUNNEL.

REPORT BY CONSUL PACE, OF PORT SARNIA.

The meeting of the shields under St. Clair River at this point August 31, 1890, marked the actual completion of this great work, the St. Clair tunnel, which undertaking was commenced one year ago the 12th day of July last. The shields used for the purpose are cylinders of steel, with a sharp, cutting edge. Four feet from the rear or back part of this monstrous implement of steel is placed a bulk-head, or diaphragm, furnished with two sliding doors, to be used in cases of emergency which might result from a sudden flow of water from the front. Arranged around this bulk-head are twenty-four hydraulic jacks, with a combined power of 3,000 tons, and by this means the shields are forced forward into the clay. These jacks find a lodgment against the last completed ring of lining or curbing, which is put together inside of the shield. The length of the shield is 21 feet 6 inches, and the plates of which it is built are 1 inch in thickness. After starting an average progress of 16 feet per day was made until the shields met under the bed of the river. The distance traversed by these massive cylinders of steel was 6,000 feet, being the distance from portal to portal of the tunnel. When at work the iron lining or tubing is put together inside of the shield, or in that portion of it usually called the hood. The hydraulic jacks are then made to press against the completed lining, by which means the shield is pushed forward into the clay a sufficient distance to admit of another ring or set of completed segments. By this forward movement of the shield a space sufficient to admit of another section of a completed lining is made, and, this space being filled, the process is repeated again and again as the work progresses. As the shield is pressed forward into the clay workmen with peculiarly shaped hollow-bladed or curved spades are in readiness to remove the clay through the apertures in the shield to the cars in waiting. These cars are drawn by mules, and they in turn convey the clay entirely outside of the tunnel. The extreme end of the completed tunnel lining is always within and always protected by the shield, and thus the clay is safely excavated.

SURFACE DEPRESSION.

The settling or depression of the earth on the surface does not occur until the completed segments of curbing are placed in position. In the course of a few hours, however, after the shield has passed, there is invariably noticed on the surface of the earth, on the line with the tunnel, a depression ranging from 10 to 20 inches. In one instance, on the Michigan side, the tunnel passed under a brick dwelling, and the sinking or depression of the earth caused by the excavation rendered this structure useless, notwithstanding the depth of earth under this house to the top of the tunnel exceeded 70 feet. Of course, it is presumed the earth also sinks under the river on a line with the tunnel, although I can not say that this fact has been demonstrated.

CHARACTER OF SOIL EXCAVATED.

The material through which the shields were made to pass from portal to portal is principally soft blue clay, interspersed with pockets of gravel, coarse sand, and quicksand. Bowlders are sometimes encountered, but they are usually small; occasionally, however, they are so large as to require to be broken in order to facilitate their passage through the compartment apertures of the shield. To accomplish this a resort is had to the drill and the wedge; by this means they are soon reduced, and thus carried to the rear. Under the river-bed the clay was found to be much softer and more easily excavated than in the approaches from either side.

AIR LOCKS.

When the tunnel had progressed from the portals each way to the respective banks of the river air locks or diaphragms of solid masonry were constructed. These were placed at the banks of the river, on a line with the water's edge, and built in such a manner as to withstand a very heavy air pressure. These bulk-heads of brick and iron are supplied with massive iron doors, sufficiently large to admit a car of clay from the inner chamber of the tunnel, and arranged in such a manner as to form an air lock. Persons proceeding into that portion of the tunnel which underlies the river must necessarily pass through the air locks. You pass through the first door of the lock into a compartment, and the door is then closed. Into this compartment the compressed air of the inner tunnel is then slowly or gradually admitted. When it becomes equalized with the compressed air of the tunnel proper, the rear door of the diaphragm is opened and the person may pass into that portion of the tunnel which is still pervaded by compressed air. In passing out from the heavy air pressure the pressure in the air lock compartment is gradually reduced until it is equalized with the normal pressure in the open tunnel. Thus the process by which persons are admitted to the inner tunnel is reversed when it becomes necessary to pass them out. The compressed air is introduced into the inner tunnel by means of four class A Ingersoll Sargeant air compressors.

EFFECTS OF COMPRESSED AIR ON THE ANIMAL SYSTEM.

Some difficulty was experienced at the outset on account of the disinclination of men to subject themselves to the extra air pressure made necessary in order to secure the safety of the work; but, as a rule, no inconvenience resulted from its use. Especially is this true of the American end of the tunnel, where the pressure during the progress of the tunnel until the meeting of the shields did not exceed 17 pounds to the square inch. On the Canadian side large pockets of quicksand and gravel were encountered, and, as a consequence, a much greater pressure was required to keep back the water, without which this great work would have fell short of successful achievement. Therefore, for many days a pressure was kept up which slightly exceeded 28 pounds to the square inch. I am satisfied, from observation, that men of ordinary powers of resistance, being possessed of fair health and strength, by prudent management may successfully withstand a 32 or even 34 pound pressure without serious inconvenience to themselves. The one thing essential as a measure of safety is to be gradually introduced into the pressure, and then to be gradually released from it. If this rule is observed, there is slight danger of unfavorable results. Where this rule is ignored the results are often serious and sometimes fatal. During the progress of this work three fatal cases from extra air pressure have been reported, and, upon investigation, I am led to believe that imprudence on the part of the men themselves is what led to these melancholy results. Too sudden a transition from normal or natural air pressure to the artificial pressure of from 28 to 32 pounds to the inch, is absolutely dangerous, and no class of men is better acquainted with these facts than those who are engaged in building this tunnel. The new beginner is warned by the mechanical engineer in charge of the work, and he is instructed how to pass through the locks with safety. These warnings and instructions are repeated by his fellow-workmen, and it only requires the exercise of prudence to render a man as safe under air pressure as out of it. The victims of extra air pressure complain of severe pain in the limbs and larger muscles of the body; the circulation is, in all cases, very much impeded, and evidences of congestion are generally apparent; respiration is extremely difficult and painful. Physicians disagree somewhat as to the exact cause, or, rather, as to how the extra air pressure affects the system. Yet it is evident to any one who has witnessed the suffering of a patient from what is vulgarly called the "bends," caused by too sudden a release from extreme air pressure, that the agony endured by the patient is certainly very intense. I was for some hours at the bedside of a victim of extreme air pressure, and was present when his sufferings ended in death. The young man in question was aged twenty-two years, of splendid physical development, and well nourished. He had withstood, with others, for eight hours a pressure ranging from 28 to 30 pounds and felt no inconvenience whatever until he was suddenly brought out into the open air. Others of his fellow-workmen, physically much more delicate than himself, had withstood the same pressure for the same length of time, and, being gradually released, they experienced no inconvenience whatever, whilst the young athlete, with greater powers of endurance, though less prudence, died in a few hours in great agony.

NATURAL GAS.

Little, if any, inconvenience was experienced from natural gas. An immense quantity of fresh air was pumped into the tunnel, and every known means were taken advantage of, to the end that pure air should pervade the tunnel and thus render safe the lives of the men engaged. Davy safety-lamps were intrusted to cautious, experienced men, and everywhere kept burning. This absence of gas was very gratifying to the management of the tunnel, as in the outset the possibility of encountering gas in great quantities gave the engineer much concern.

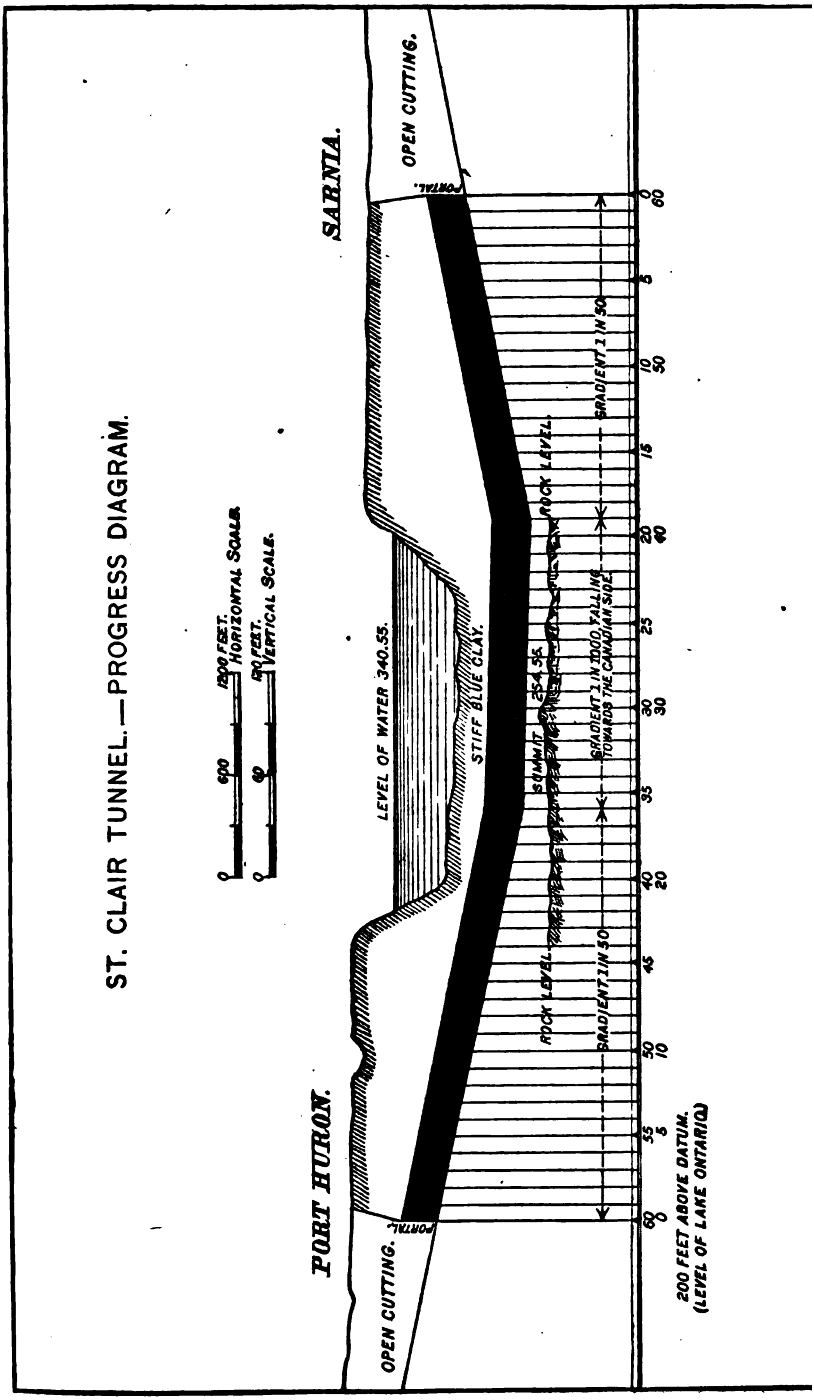
THE LINING OF THE TUNNEL.

The lining or curbing of the tunnel consists of cast-iron segments bolted together. In each ring of lining there are thirteen segments, or plates, and a smaller key piece. Each plate is 4 feet 11¾ inches long by 18 inches wide and 2 inches thick. Each plate, or segment, has flanged ends and sides, through which the bolts are introduced, and by this means the various segments are firmly fastened together, forming a complete circle. A shimming of wood, like a piece of veneering, is cut to fit the ends and sides of the segment, with holes cut to receive the bolts. These pieces of wood are placed on the ends, or, rather, between the ends and sides of the plates, and they are firmly held in place by the screw-bolts which hold the plates together. The object of the shimming is to make water-tight joints, and thus keep the water from the tunnel. This plan is reasonably successful, yet not entirely so, for between the joints here and there the water oozes through, not from above, as one might be led to suppose, but from the bottom. This water, as the resident engineer informs me, does not come from the river, but from the rock. By reference to the inclosed sketch it will be observed that the summit of the rock is but 6 to 8 feet below the bottom of the tunnel under a considerable portion of the river's bed. To render the tunnel still more secure from a flow of water, the joints in the segments, or, rather, the joints formed by the joining of the segments, in the lower half of the great tube are calked with lead much as the seams in a wooden ship are calked with oakum. After the seams are thoroughly calked a thick coating of cement is plastered over the curbing, after which a brick lining is placed upon this. The brick lining serves the purpose of protecting the iron lining from the action of salt brine which escapes from passing refrigerator cars. Before being placed in position the iron plates of the tunnel are treated to a thick coating of hot coal-tar, and a grouting of Portland cement mixed with sand and gravel is made to form the tunnel bed. The weight of the iron consumed in lining this tunnel, and which is now in position, is 27,000 tons. The shield being of greater diameter than the curbing, a space of a few inches remains to be filled. This space is filled on the bottom and half-way up each side by a process which forces liquid cement to the place desired.

Directly under the angle of the bank on the Canadian side of the river is the lowest dip or depression of the tunnel, as will be seen by reference to the sketch before mentioned. At this point will be located the pump which is designed to relieve the tunnel from surplus water which may, from any cause, find its way to the tube.

DEPTH OF WATER AND CLAY.

The maximum depth of water over the tunnel is 40.47 feet, and the minimum depth of clay over the tunnel under the bed of the river is 8.43 feet. The rock summit, as shown in the diagram, lies less than 7 feet, in some places, from the great iron tube. Thus, it will be observed, the depth of clay from the bottom of the river to the top of the rock was just sufficient to leave a margin of from 7 to 10 feet betwixt the top of the tunnel and the water, and about the same distance intervenes, on an average, betwixt the bottom of the tunnel and the summit of the rock. Taking into consideration the quality of the clay and its comparative freedom from dangerous deposits of gas, its depth under the river and above the rock, its softness, and other valuable characteristics, it is doubtful if a more favorable location for the construction of a tunnel could be found. Indeed, if the distinguished engineer who was intrusted with the construction of this great work could have had a choice as to the composition, consistency, and quality of the clay through which the great shield was to be forced, he could not have selected any quality of soil better adapted to the purpose. For most of the distance under the river the clay was as soft as putty prepared for use in glazing.



ST. CLAIR TUNNEL.—PROGRESS DIAGRAM.

SOUNDS HEARD IN THE TUNNEL.

I am informed by workmen who are engaged in the tunnel that they frequently distinguish the sound of the revolving wheels of steamers, which almost hourly during the season of navigation pass over their heads, and that during the excursion season they frequently hear the beating of the drum and other sounds of music discoursed by bands on board these steamers.

CHARACTER OF LOCOMOTIVES.

In transporting cars through the tunnel a style of locomotive known as the "Decapod" will be used. The ordinary road or traffic locomotive will not be used for that purpose. It is presumed, also, that some means will be adopted to render these locomotives smokeless, as dense coal smoke confined to the limits of the tunnel would seriously interfere with the successful use of the great highway.

VARIATIONS OF THE SHIELD.

Slight variations of the shield were frequently detected by the use of nicely adjusted instruments known to the art of survey, and these variations were quickly and accurately adjusted by hydraulic power. By concentrating the force to one particular portion of the shield its direction was changed as desired. To watch this great steel cylinder and see that it did not vary from a direct line, or to bring it back again into line when its course became erratic, was the duty of the trained civil engineer. When these massive machines had approached to within a few feet of each other under the bed of the river, say to within a dozen feet or less, an augur was brought into use, and, piercing the center of the intervening clay, it was thrust through to the space beyond, and through this aperture the builders conversed with each other. The engineer in charge informs me that his anxiety at this time to test the correctness of his previous observations was most intense. At first the conditions necessary to make an accurate test were not favorable, at least not perfect, and at the first glimpse through the instrument into the space beyond he thought he detected an error, and his depression and chagrin over what he for a moment felt to be a blunder in calculation was only equaled by his great joy when the final truth was revealed to him. The engineer's vision had for a moment been defective; but the shields, which for weary months had been the mute objects of his watchful care, were exactly in line. They had not deviated one inch from the course which science had marked out as their pathway.

SAM'L D. PACE.
Consul.

UNITED STATES CONSULATE,
Port Sarnia, October 11, 1890.

SILK CULTURE IN CHIN-KIANG.

REPORT BY CONSUL JONES.

In a report on the subject of silk culture it is necessary to divide it, or rather it naturally divides itself, into three parts—the rearing of the insect which yields the silk, the extraction of the filament in a state fitted for the manufacturer, and the spinning and weaving into textile fabrics. It will not be necessary to discuss the commercial question arising out of the manufacture.

MULBERRY PLANTATIONS.

Silk is produced in this district by the worms which feed exclusively on the mulberry; and it may be said, therefore, to be the chief, if not the only, food of the silk-worm. There exists two kinds of mulberry-trees, the "kin-sang" and the "lusang," both of which are raised from seed. The names are derived from the places where they are cultivated. Two methods are in use here in making a mulberry plantation. In one the mulberry is picked, when the berry is ripe, from large thick-leaved trees and fed to the pigs; the droppings of the pigs thus fed are preserved, dried, reduced to a coarse powder, and planted. The ground has been prepared beforehand by loosening the soil and the application of a fertilizer, most commonly the waste of the bean cake after the oil has been extracted. When the seeds begin to sprout additional fertilizers are applied and from time to time water sparingly given the plants, which, under ordinary conditions, will grow to be healthy, strong trees. The sprouts, when well up from the ground, are transplanted and given a space of 5 or 6 feet from each other. December is the best month to transplant. The other method of planting the seed is to put the berries in water and break them up. Those which float are cast out and those which sink are used. They are then dried in the shade (sunshine is said to delay their germination), scattered in good soil prepared and slightly manured, and covered over with ashes. In selecting the berries for seed the largest and blackest kind are chosen for the purpose. For these plantations high plains are selected; in low, wet ground the trees do not thrive, but they must have a sufficient supply of water.

In many of the plantations in this neighborhood the wild mulberry is begun with, upon which the cultivated mulberry is grafted. This makes the tree very rich in leaves, and the plan of grafting is greatly valued by the Chinese. The grafting takes place about the time of the vernal equinox (March–April), when the young shoots are about to bear leaves. The cuttings used for grafting are about the thickness of a lead-pencil, and are wrapped in cloth to protect them from the sun and air. The young tree is then cut down within a few inches from the ground, an incision is made between the bark and the wood 1½ inches deep and a bamboo slip inserted. The cuttings, which are about 3 inches long, are cut off with a sharp knife, leaving two sprouts at the upper end. These are inserted in the incision of the trunk and the slip of bamboo removed. The part of the cutting which has been pared off or cut with the knife must be placed to face the bark, as the sap of the trees passes through the bark and serves to cement the joint. The bark of the tree is carefully wrapped about the wound and secured and covered with earth to protect it from the air. The new graft must not be exposed to the rain or sun until it has taken firm hold, and care must be taken not to move it out of position; a speedy growth will be the result. My informant tells me that it is a favorite plan in the making of a mulberry plantation to dig a ditch on all sides of it, the mud from which is useful to put at the roots of the trees as a fertilizer; that water should be plentiful for the nourishment of the trees. The ditch is also useful in preventing people from stealing the leaves. If the ditch connects with a running stream, so much the better; a constant supply of fresh water is obtained, which can be utilized, also, in the breeding of fish to advantage.

When the grafted slips begin to grow and sprouts issue forth, only two of them are allowed to grow, which will become branches toward autumn 5 or 6 feet long. In the month of February the tops of these branches are cut off to within a foot or more of the stem, giving the plant the appearance of the letter y; and retain, as before, two buds on the end of each branch, cutting off all the rest. In the ensuing year clip off the new branches again, leaving a foot or more according to the former methods; and thus go on clipping and retaining, and the branches will continue to double their number. After having clipped the plant for several years the tree will assume a knobbed appearance, having upon it from sixteen to eighteen knobs or fists, when it gets the name of "tsaosang," or fist-like mulberry. In clipping the tree never retain the central branches, and then the branches will spread on all sides and the tree will assume an umbrella-like shape. They are usually kept at a height of 5 or 6 feet for convenience in picking the leaves. A full-grown tree will produce 70 to 100 pounds of leaves. A sound mulberry-tree will last over fifty years. When, after some years, the trees become hollow and decay, young shoots are planted close to these trees, and when they grow up the old tree is taken away and its place is thus filled.

Sometimes the trees become covered with mosses, which must be carefully scraped away, else the trees will bear fewer and thinner leaves. In the autumn of each year the soil about the roots of the trees should be loosened and manure applied, and in the spring the exuberance of the foliage will be doubled.

There are two insects which are enemies of the mulberry-tree. The one is called the mulberry ox, and is found in the bark and also on the leaves; the other attacks only the leaves. The former bores into the bark and lays its eggs within. The trees should be carefully examined, and, if holes are found, an iron wire is inserted and bean oil poured in, which will destroy the grubs. The latter insect comes up from the ground to the tree and devours the leaves and young shoots. To destroy these, lighted torches are used to singe them, when they drop to the ground and are killed. A liquid from the tobacco stock boiled in water is effectual in getting rid of them, by sprinkling over the trees. The ground of the plantation should be kept clear of all long grasses. The manure of pigs, cattle, sheep, and horses is used at the base of the trees. The Chinese use and prefer night-soil to any other fertilizer.

SILK-WORM REARING.

According to the Chinese, the silk-worm is a very sensitive creature, with strong likes and dislikes. For instance, it loves fire and hates water; it eats, but never drinks; it is fond of stillness, and dislikes all noises; it prefers to be warm, and is exceedingly averse to dampness; it abhors smoke, wine, vinegar, and all acid things; it can not bear the smell of oil or musk, and especially dislikes people in mourning and pregnant women. While in the egg state they must be kept cool, but as soon as they are hatched they must be kept warm. On awakening from their first sleep they require warmth, but after their principal sleep they must be kept cool. As they become old the warmth must be increased, and when upon the straw to spin they must be kept extremely warm. The rooms in which they are reared require to be kept scrupulously clean. Those skilled in rearing the silk-worm take care that the young are produced about the middle of April and that they come to maturity in twenty-seven days, in which case they are strong, seldom ill, and produce an abundance of silk. Silk-worms should be so managed that the eggs be laid together, hatched together, and the spin begun together. The sexes are determined by the shapes of the cocoon. The cocoon sharp at each end contains a male, the rounded cocoon a female. When selected they are placed in a well-ventilated, dry room to await the coming out of the young. They seldom appear in the daylight, but issue generally between 2 and 4 a. m. After they have come out from the cocoons they are mated, which is a matter generally of mutual attraction, and placed in clean pans. In five or six hours separate them by removing the male moth and putting him elsewhere. The pans are then gently tapped to shake off the liquid matter from the females, when they are placed on clean paper at uniform distances, where they will lay their eggs. The female moths, after laying their eggs, live five or six days without eating and then die and are buried. The eggs of the first and second layings are good and healthy, while those of the third laying are seldom used, as they are not considered strong and healthy.

It is important to have good eggs, and, in order to have such, strong silk-worms are selected from small and closely woven cocoons. Durable, thick white paper is used for the worms to lay their eggs on, but white linen or fine grass-cloth is preferred. After the eggs have been placed on the cloth or paper they are put in clear water and washed. Mulberry leaves boiled in water when cooled are often used for washing the eggs, as it is believed to aid in hatching them. After this bath salt is sprinkled over them for a day, then brushed away and fine ashes of burnt mulberry leaves scattered over them, and so kept for ten days, when the ashes are shaken off and the eggs hung up in the open air. The paper containing the eggs is then carefully wrapped in cotton 2 or 3 inches in thickness and these rolls put away in a warm place. After five or six days the rolls must be examined; when the eggs have changed to a green color it is a sign that the worms are about to come forth. In this stage they must be watched and the rolls opened every day. If only a few have come out, they are wrapped and put away again until they all come out. A newly hatched silk-worm is as fine as a thread and black in color.

The hatching takes place usually from 8 a. m. to 12 o'clock noon. The arrangements for rearing the spring silk-worm are begun a year beforehand. The straw of the late crop of rice is preserved for making the mulberry hills. It is squarely cut off at both ends about 25 inches in length, and made into bundles by tying it in the middle. Charcoal is prepared beforehand to be used in keeping the worms warm; straw chaff is burned for the ashes to spread on the worms in the first sleep. Rooms should be provided with a thorough ventilation, and arranged so as to be closed in damp or cold weather. When the eggs are hatched, dried mulberry-leaf dust is sprinkled on the paper so that the young will smell the fragrance of the leaf and crawl on the dust. Then shake them off on a clean table and sweep them together with a goose feather; put them into a pan and place them in a warm, dry place. This is done every day until all the eggs are hatched. Salt is sometimes sprinkled on the eggs, with the idea that the young will not then be affected by coming in contact with the sweaty hands of those in charge of them.

The health of the worm is ascertained by examining them when they feed and by their color. If they eat rapidly and with relish, they are strong and well. If the skin lacks an oily or shiny coat, it is useless and must be thrown away; when the joints show a green and blue color it is not good; when it is of a dead white color it is valueless. Flies should be carefully kept away from the worms; they also dislike strangers and loud talking. The ailments of silk-worms are due mostly to sudden changes of temperature and the condition of the mulberry leaves given them to feed on. They should be kept in an even temperature. The leaves should never be given them with the morning dew on them, and leaves picked in the afternoon dry rapidly and overheat the worms. The leaves should be picked in the morning when the dew has been evaporated by the sun.

The blossoms of the wild silver flower (a species of honeysuckle) and licorice root steeped in water are used to sprinkle over the mulberry leaves before they are given to the young worms. These are belived to be efficacious in preventing the ordinary ailments of the worms.

When all the worms are hatched new cotton is spread on the paper and put in the pans and the worms placed in them. Mulberry leaves, cut with a sharp knife into fine shreds, are spread over them, when they will at once crawl on to the leaves and proceed to eat them.

They must have plenty of space now and will devour the leaves rapidly, so that the leaves will have no time to get dry or withered. Supply them constantly with fresh leaves and they will grow strong and healthy. They should be fed now four times a day. On the fifth day they sleep. They sleep three or four times, and the intervals of sleep are usually seven days.

The worms that sleep four times invariably give more silk. In the intervals of these sleeps they cast their skin. Before the sleep their color is a greenish white. After the sleep they are the color of coarse glossy rice. During their sleeps they, of course, eat nothing, and are undergoing a process of transformation. A larger mouth is then formed, and they are stronger and eat more.

The time occupied in sleep is two days and nights. In order that they may be made to sleep at the same time, it is necessary that they be fed plentifully. The more they eat the more readily will they be disposed to sleep. The leaves for this purpose are cut into small shreds and fed to them frequently and in small quantities. At the same time the atmosphere of the rooms should be kept at a uniform warm temperature. When they sleep powdered lime should be gently sprinkled over them. This serves to dry up the excrement and the old leaves; and, on awaking, the worms will not eat the old leaves, but wait for a fresh supply. As this is their first sleep, there is no need to feed them in a hurry on awaking, and that all may be awake a day's fasting will not injure them, and in this time their mouths will grow harder and the bodies of the worms larger. After this first sleep they are about a quarter of an inch long. When fed after this sleep the leaves should be cut larger. They will eat slowly at first, but after a day or two more rapidly. After their second sleep they will have grown to double their former size and have a slight tinge of yellow in color. Feed them now five times a day. Within five or six days they will pass into their third sleep. On awaking from this sleep give them the whole leaf; their mouths are now strong and sharp, and they eat them without difficulty. They must now be constantly supplied with leaves, that they may be kept eating day and night, and after the fifth day they are ready for their fourth or, as it is termed, the "great sleep." During this great sleep is the time to weigh them. It is estimated by experience that 1 pound of silk-worms will eat 15 pounds of leaves and weave 1½ pounds of cocoons. After weighing them give them fresh leaves; over these spread rice powder (rice ground to a powder), which, on awaking, they will eat with avidity. The rice powder, it is understood, imparts strength, weight, and gloss to the silk. In all these different stages of the worm great care should be taken to keep the pans in which they eat and sleep perfectly clean, and from time to time it will be necessary to remove the worms from the pans that they may be cleaned. This is done by the Chinese by the use of chopsticks, and often by taking them up on the fresh leaf. A soft goose feather is used to sweep them together. After the third sleep they can be hand-removed from the pans.

At the fourth sleep a hempen net is spread over the pans, with interstices sufficient for the worms to crawl through, and over this the leaves are spread. The worms will crawl through the interstices of the net to get at the leaves, when the net is removed with the worms and the pans made clean. In the rearing of many worms pans of different sizes will be required and a sufficient number of nets to cover them. At maturity the worms are about 2 inches in length.

GOING TO HILL.

After the great sleep in the summer time, in about six days, the silk-worms will go to hill. During this time the rice powder, mixed in water, is sprinkled frequently on the leaves; a powder made by pounding the dried green pea will answer as well. The advantage of giving them rice or green pea powder with the mulberry leaf is that more silk will be woven and the material will be stronger. When it is observed that the worms are bright and transparent in color, slightly yellow, and begin to contract their bodies it is a sign that they are full grown and are ready to go to hill. At the time of the removal of the worms fine weather is desirable, as then the cocoons will be quickly woven and be easily reeled. If the weather be dull, fires must be placed all round, lest the worms cease to spin. The bundles of straw heretofore mentioned, called "silk-worm hills," are placed on mats supported by elevated platforms 3 or 4 feet high, and straw spread at the base of each to catch such worms as may fall. The bundles of straw should be placed together in rows, so that they support each other. Willow branches are spread over the pans containing the worms, which they will at once crawl upon. They are then gathered in a basket and carried to the hills, about one hundred worms to each hill, that they may not be too crowded. Fire-pans are placed under the hills to keep up a proper degree of warmth. The temperature for silk-worms is considered at 60° F. mildest, at 70° warm, above 70° and 80° very warm, at 50° cold, and under 50° to 40° very cold.

GOING DOWN HILL.

Seven days on the hill are required for the completion of the cocoons. It is necessary to look carefully after them at this time to see that they are at work on the cocoons. If any are idle, it is because they have not sufficient room to work in, in which case additional bundles of straw should be supplied and the crowded worms removed to them. To ascertain if the worms are at work it is necessary to listen to them frequently. When at work they make a noise not unlike that of a soft shower of rain. When, after five or six days, no noise is heard it is a sign that they have completed the cocoons, and they are then taken off the hills.

The outer coating or floss of the cocoon, which envelopes the real silk, is taken off, when an experienced eye can at once detect the superior and inferior quality of the silk of the cocoons. The first quality is in the small and thick cocoon, the color being pure white, without speck or blemish. The thread of this cocoon is reeled as the fine quality of silk. The large and thin cocoons, imperfect in form, often containing specks and straw marks on them, are inferior, and are reeled as coarse silk. Cocoons having two silk-worms within are much larger than the single ones and coarser in quality. They are put aside for coarse silk or the moths kept for breeding purposes.

WILD SILK-WORMS.

The Chinese method of dealing with the wild silk-worm is to catch and tie the leg of the moth to prevent its flying away and secure a mate for it of the opposite sex and let them be together for five or six hours, when they are separated. Eggs will then be laid, which are placed in a wooden tray. This is done usually in clear, bright weather in the month of April. The tray containing the eggs is hung in a windy place. In about ten days they will be ready to hatch. At this time the tray containing the eggs is floated in water to prevent the young worms from getting away. When all the eggs are hatched the tray is placed on the small mulberry-tree, and the worms will crawl out and on to the leaves and feed themselves. The eggs, by exposure to the air, will hatch without trouble, being hardy and tough, requiring little care. After finishing the young leaves the branches containing them are cut off and taken to other trees. These wild worms are not sensitive to wind or rain or sun, and will readily take care of themselves. While feeding it is the custom to fire off crackers and guns to frighten away the birds which feed on the worms. They have three molting periods, but need no especial care, and will feed and sleep and weave their cocoons on the tree. Their cocoons are mostly used for making refuse silk. The wild silk-worms are smaller than the domestic worms and are of a grayish black color.

The wild worm cocoons are treated as follows: Boiling water is poured over charcoal ashes and thickly mixed with the latter. The mixture is kept boiling. About 2 pounds of cocoons are placed in sieves, and the ash water is poured over them several times; the cocoons are then transferred to the pan, into which the ash water has been poured back again. After this process has been followed several times the cocoons are felt with the hands. When the silk is found soft to the touch, the sieve, with the cocoons, is placed in the pan and they are steamed for a few minutes. The cocoons are afterwards taken out and attached to sticks, ten or more on one stick, washed with water till clean from all ashy matter, and then dried. The silk is thereafter spun off slowly with an ordinary old-fashioned cotton spinning-machine and woven into pongees.

REELING SILK.

In the work of Mr. Kleinwachter on silk culture in this district, he thus describes the primitive machines now and from the very beginning of the industry, without improvement or modification, in use for reeling the silk from the cocoons. They are apparently ingenious, and answer the purpose, but are sadly primitive and cumbersome. The main body of the machine consists of four poles; of these, the two hinder ones are about 2 feet 4 inches high, with notches on the top to hold the reel, while the left front pole—the part facing the person reeling being called the front—is 2 feet 7 inches in height, and has a hole on the top to admit the pressing rod; and the right front pole is 2 feet 3 inches high, and is furnished with a peg, upon which the driving pulley is set. The reel is made of hard wood; its main bar or axle, which is 2 feet 5 inches long, has four pairs of wooden sticks (spokes) 1 foot long, joined at their tops by cross-bars projecting from it. The portion of the machine which contains the rollers consists of a wooden frame, in the upper part of which the rollers, made of bamboo, are arranged upon a revolving bar. There are eyelets attached to the lower bar, through which the silk filaments from the cocoons pass. These eyelets, as a rule, are made of copper wire beaten flat at the end, with a small hole pierced through. The pressing rod is a piece of wood 2 feet 5 inches long, fitting into the hole at the top of the left pole and on to the head of the driving pulley, which latter itself revolves on the peg of the right front pole of the main body. The driving pulley, which is made of mulberry wood, is 3 inches thick and 6 inches in circumference, and the driving band runs round it and the projecting shaft of the reel. To the top of the driving pulley the one end of the pressing rod is fastened. The combs are made of bamboo about 6 inches long and 2 inches wide, shaped at one end like a comb. The treadle and driving rod is made of wood about 1 foot 5 inches long and 6 inches broad, forked and joined by a peg to another piece of wood 8 inches long, with a foot-board for setting the machine in motion. The stove is an ordinary Chinese charcoal stove made of clay. The furnace is either built of bricks or consists of an earthenware jar, with a kind of door to it, covered with lime and mud inside and out. The pan is set into it with clay and mud to prevent the escape of smoke between it and the furnace. The chimney is made of split bamboo (basket-work), about 6 or 7 inches in diameter below, smaller at the top, and led out through the roof. The aperture or door to the furnace is built round with bricks, upon which the chimney is set. Fire-wood is burned in the furnaces, as being cheaper than charcoal.

Clean and white cocoons are selected for reeling to produce a bright and shining silk fit for the manufacture of first-class quality of silk piece-goods.

The water used for reeling silk is taken from mountain streams, as being the cleanest. The water from ponds and wells is never used; if mountain water can not be had, river-water is taken, which is cleaned by putting a pint of live shell-fish to one large jar of water holding 50 or more gallons. There is a special kind of shell-fish, called the fresh-water snail, found everywhere in streams and ponds. They first all sink to the bottom of the jar, and then by degrees make their way up its sides, consuming all impurities in the water within half a day or so. After the clean water has been drawn from the jar the shell-fish are cleansed and put to the same duty again.

The reeling-machine is put close to the furnace and at the same level with it, and care is taken to secure the machine so that it works steadily and without shaking in any part of it. A wooden tub is placed near the furnace for the reception of the chrysalides after the silk has been reeled off them.

One man attends to one machine. The cocoons are put into the pan, which is filled with hot water, and stirred with the comb until the ends of the silk filament of the cocoons get loosened. The rough part of the cocoons is then cleared away, the clean filament of silk is taken hold of with one hand, and, the cocoons being steadied with the help of the comb in the other, the filament is passed through the little eyelet, thence over the roller, and under the hook upon the pressing rod on to the reel. The object of the pressing rod is to make the silk run straight around the reel. The treadle is thereafter set in motion with the foot. As each cocoon is reeled off it is replaced by another immediately that the cocoon becomes thin like paper and the chrysalis is visible, lest the latter might break and soil the silk.

Threads made with 6 or 7 cocoons are classed the finest. The lower grades range as follows: Threads made from 11 or 12 cocoons, from 15 or 16 cocoons, from 18 or 19 cocoons, and from 20 cocoons or more, which last are classed as the coarsest.

When the filament of a cocoon breaks it is at once reconnected or replaced by another; the filaments of more cocoons are also added in case the filament is found to be too thin. The small charcoal stove is placed under the reel in order to dry the silk filaments, which would otherwise stick together as they run over the reel. Care has to be taken not to place the stove too close and that no sparks or smoke rise from it, for fear that the silk get burned or smoked black. Likewise, in case the water in the pan becomes dirty, it is removed; so, also, the driving band is kept constantly moist with water to keep it tight to secure that the threads run straight over the reels.

Silk so reeled varies from 13 to 26 ounces avoirdupois to the skein in weight. The skeins are taken off the reel, together with the cloth cover, by driving the main bar of the reel with a hammer in an opposite direction to the spokes, by which means the latter will fall off.

All the above directions are most minutely attended to, in order that the silk may be of equal thickness and shining. A quick hand can reel in one day, under the above system, about 26 ounces of fine, or 40 ounces of coarse, silk.

Reeling silk with foreign machinery is unknown in this district. There are several kinds of cocoons unfit for reeling, such as moth-bitten, dupions or double cocoons, flossy, maggot-bitten, etc., which are made into refuse silk. For this purpose they are put into clean water, which is changed several times in a day, and in which the cocoons are beaten about to clean them of all dirty substances. Water is then poured on some straw ashes and boiled; as soon as it boils the cocoons are thrown in and boiled in it. Half a cup of bean oil is added, the cocoons are continually stirred, and, after a little, another half-cup of oil is added. After the cocoons have then been thoroughly boiled they are taken out hot, placed in baskets, and washed in the streams, and, finally, dried in the sun. They become soft and flossy like cotton, fit for making refuse silk, or are also spun into yarn of uniform size, not too fine, and woven into pongees.

The discarded chrysalides are hawked about the streets and sold to the poorer classes as an article of food.

SPINNING AND WEAVING.

The manufacture of silk in this region, like all other arts in Asia, is chiefly undertaken individually; each one spins, weaves, and dyes his own material.

There is little or no attempt at division of labor or employment of capital, as seen in western nations in the shape of manufactories, etc.

It is an industry in China dating back at least four thousand years, and in that time there has been little, if any, improvement in the construction of the machinery used for its manufacture. In agriculture, in manufactures, and in almost every industry the same methods and the same appliances are in use now that were known from the earliest ages. Everywhere in the country you see the same rude plow and loom and simple implements that are spoken of in the most ancient histories of the Bible; and this extreme conservatism enters into all their life, and, from all appearances, will continue until a railway system shall suddenly awaken them to a new civilization.

There are manufactured principally in Chin-Kiang two kinds of silk, the one known as "ling" silk, which is a thin silk with a glossy surface, the other "kung" silk, which means an imperial fabric; both belong to the same class of (silk) damasks. The raw silk for the warp is boiled and softened (133 ounces of raw silk will produce about 104 ounces of soft silk), and the silk for the woof is merely beaten to soften it. The raw silk is dyed before being woven. Each piece is about 54 feet long and 2 feet 2 inches wide. The weight of the pieces is irregular. The heavier kinds have 4,400 or 4,500 heads or warps, the lighter kinds only 3,900 to 4,000. Shiny and smooth silk is selected for the woof.

In the manufacture of these silks there are about sixteen hundred families engaged at Chin-Kiang. Each loom employs three or four persons, giving employment to several thousand people. For each loom there are required one man to attend to the figuring part of the weaving, one for weaving, and one to look after the warps. In one day the three men together can turn out about 12 to 16 feet of silk; for plain silk two men only are required at each loom.

In the manufacture of gauze raw silk is used for both the warp and the woof, but neither are boiled or beaten to make them soft. The gauzes are merely themselves softened—some sorts thoroughly, some half, etc. Each piece is about 55 feet long and 2 feet wide, containing between 2,500 and 2,700 heads or warps, and worth from 18 to 20 cents a foot. Thrown silks are used for these silks also; for the warps the finer threads from the coarse skeins are selected, and for the woof coarse silk alone is used.

All kinds of silk ribbons are manufactured at Chin-Kiang, and of different widths. The broader kinds have more, the narrower less, heads or warps. The silk for the warp is first boiled and dyed, and that for the woof is first dyed and then beaten to make it soft. There are fifty or sixty looms engaged in weaving silk ribbons, each attended by one person; a second is required only in weaving the broader kinds, to attend to the figuring part of the weaving. On an average, one person can weave about 40 feet per day. Women and girls are mostly employed in making ribbons.

In the manufacture of satin the silk for the warp is first boiled and dyed with safflower (*Carthamus tinctorius*); that for the woof is not boiled, but slightly beaten and dyed with sapan-wood (*Cæsalpinia sapan*), resembling Brazil-wood in color and properties. Each piece is 30 feet long and 2 feet 2 inches wide, containing 8,500 heads or warps.

Silk floss and sewing-thread are also made at Chin-Kiang. For floss the silk is coiled into skeins, then boiled with soda till soft. It is afterwards put into a solution of soap to destroy the greasiness of the silk and then dyed. For making sewing-silk raw silk of uniform thickness is chosen. Two filaments are twisted together into threads, the threads are then coiled into skeins, and are either left raw or are boiled like silk floss to make them soft.

There is made here, also, a silk called "chien," used for long robes for summer wear. Raw silk is used for both the warp and the woof. It is made into pieces of 50 feet in length and 2 feet 4 inches wide, and sells for about $6 or $7 a piece.

In the manufacture of crape the raw silk, without being previously softened, is used for both the warp and the woof. The crape is afterwards softened. Each piece is 50 feet long and 1 foot 4 inches wide, containing about 2,000 warps, and worth about 20 cents a foot.

The silk and satin embroideries of China are brilliant and beautiful. They are made by women and young girls.

Raw silk is made in considerable quantities at Nanking, within this district. It is the product of worms fed with wild and domestic mulberry in proportions of two parts of the former to eight parts of the latter, and is used for the weft in pongees and satins. It is unfit for the warp in weaving satins. The weaving of all kinds of silks and satins which are made for the Emperor is forbidden to the people.

At Nanking there are seven or eight thousand looms employed in weaving silk and satin. Each loom requires at least two men, and in certain kinds of weaving three men, making the number employed to be from eighteen to twenty thousand men, besides the women and girls. The kinds of silk manufactured are very numerous, but the principal kinds are "ning" silk and "kung" silk. Of the ning silk one man will weave about 6 or 7 feet a day; of the kung silk one man will weave about 10 feet a day.

The satins manufactured at Nanking—the "mopên" satin and "chuang-hua" satin—are very rich and beautiful. There is also made a rich satin called "Veda's gold." It is a kind of damask interwoven with gold thread. It is made almost exclusively for the Emperor. It is roughly estimated that about 200,000 pieces of satin are made each year of the value of about $2,600,000. The ning silk is worth about 90 cents a yard, and the kung silk about 60 cents a yard. The best quality of satin (mopên) is put up in rolls of 40 feet in length and sells for about $25. The second quality of satin (chuang-hua) is put up in rolls of 39 feet and sells for about $18 or $20.

As to the wages of the workers in silk manufacture, they are not regulated by the day, but by the quantity of silk woven. The average wages are about 150 or 200 cash per day, which is about 15 and 20 cents a day in United States currency. Their food of rice, etc., is also supplied them. Of course, skillful and quick workers will make more than this, and very slow workers make less.

The manufacture of velvet is mostly for the imperial household. The manufacture of ribbons is done on small looms and by women and young girls. Their wages are from 80 to 100 cash a day, that is, from 8 to 10 cents, besides their food.

The looms employed in manufacturing silk, etc., for the imperial household are about two hundred. Last year, on account of the Emperor's marriage, there were about $3,000,000 worth of goods made. The wages of those employed on the work are greater than on the ordinary looms.

A. C. JONES,
Consul.

UNITED STATES CONSULATE,
Chin-Kiang, July 30, 1890.

DANISH LIVE STOCK.

REPORT BY CONSUL RYDER, OF COPENHAGEN.

The official statistical tables concerning the live stock of Denmark cover a period of fifty years, the first general counting having taken place in 1838 and the last in 1888. The so-called aggregate amount of live stock (reduced to horned-cattle standard, viz, one horse equals one and a half, one sheep equals one-tenth, and one swine equals one-fourth) has in this space of time been steadily on the increase, while the movements in the several classes of animals have been at times meeting with an upward and then again with a downward tendency. From these tables it is shown that the numbers in Denmark at the dates of these tellings were as follows:

Year.	Horses.	Horned cattle.	Sheep.	Swine.
1838	325,000	854,700	1,644,600	235,300
1861	324,500	1,118,800	1,752,000	301,000
1871	316,500	1,239,000	1,842,500	442,500
1881	347,500	1,470,000	1,548,600	527,500
1888	375,500	1,459,500	1,225,000	770,800

The Kingdom's aggregate strength in live stock has thus, from 1838 up to now, been of the following magnitude, namely, of 1,565,000, 1,853,000, 2,000,000, 2,278,000, and 2,338,000 head. In other words, it has increased 50 per cent. Taking the several classes, it may be said that horses in the last century were to be found in much greater numbers than in the present day; but from the date of agricultural improvement their numbers continued to fall off until the year 1871, when they had reached their lowest point, while in the two last periods of 1881 and 1888 they have increased in both of the divisions of the Kingdom, the numbers in 1888 having been 189,081 head for the islands and 186,422 head in Jutland. By far the largest number of the stock of horses consists of horses for agricultural pursuits and belonging to the home breeds. Compared with other lands, Denmark has a large stock of horses. Norway, Switzerland, Holland, Belgium, Portugal, and Greece have a smaller number, notwithstanding that the population and land area of these countries in most cases largely exceed those of Denmark. In France the absolute number of horses is only seven times and in Germany ten times as large as the Danish, although the populations are, respectively, eighteen and twenty times greater, with fourteen times larger area of square miles. Russia alone, with her very large number of horses, possesses a relatively larger number than Denmark.

The number of horned cattle, as shown by the foregoing table, has been considerably increased in the period of 1838–'81, a consequence of the great development made by Denmark in the position she now holds as a dairy land. In the last seven years, from 1881 to 1888, there has, however, been a slight falling off in the numbers, this retrograde having taken place in Jutland. The number of horned cattle was distributed as follows:

Year.	Islands.	Jutland.
1881	586,000	884,000
1888	630,000	830,000

This must doubtless be attributed in some measure to the large area of heath land of late years brought under cultivation in Jutland, which, naturally, has carried with it some reduction in the numbers of the bullock herds. As might be expected, a great difference is to be found in the number of horned cattle in the islands and in Jutland, accordingly as they may be taken in proportion to land area or to population. Where the area is taken as standard for comparison, the islands will be found with a larger keeping than Jutland; but when taking the human population, the sparsely settled peninsula is then found with the largest proportional stocks. According to these rather interesting figures, there are thus seen to be of horned cattle—

Division.	Per 1,000 head of population.	Per square mile.
	Number.	*Number.*
Islands	692	2,648
Jutland	889	1,810

The number of herds of horned cattle in 1888 for the Kingdom at large were 177,186, that is to say, 734 more than in 1881; and, as the number of these animals has in this period decreased by 10,000 head, it will naturally be found that the increase has taken place in the small herds. Summarizing the herds under different groups, there were in 1888 as follows: (1) Large herds (of 50 head and over), 1,917, aggregating 191,436 head; (2) medium herds (from 15 to 50 head), 28,021, aggregating 609,539 head; (3) smaller herds (from 4 to 15 head), 65,757, aggregating 504,982 head; (4) small herds (not over 4 head), 81,491, aggregating 153,570 head. During the last seven years group No. 1 was reduced by 4, group No. 2 by 68, group No. 3 by 1,365, while group No. 4 increased by 2,171.

Placed in comparison with other European lands, Denmark has a very large stock of horned beasts. When the human population is brought into account as the standard of proportion, Denmark, amongst all the other European countries, only gives way to Ireland; and when the land area is taken as the standard, solely to Ireland, Holland, and Belgium.

For several years past the milch cow has been absolutely the most profitable animal in the cattle states, and it is thus satisfactory to observe how this interpretation so plainly accords with the present ruling state of the herds, the number of cows being as follows:

Division.	1881.	1888.
Jutland	487,609	511,741
Islands	411,181	442,509
Entire Kingdom	898,790	954,250

The increased number of cows, it should be remarked, will not give a full explanation of the considerable increase in the later years of the Kingdom's butter exports. Another factor must not be lost sight of: the smallest herds of cattle have largely increased their numbers, and, thanks to the numerous union dairies which have been erected throughout the Kingdom, the milk produce of these small holdings has been worked up through the agency of these establishments, thereby contributing to these exports to a much greater degree than in former years.

The number of sheep, in marked contrast to that of horned cattle, has experienced a vast reduction since 1871, especially in the islands. The table shows the number in the different periods to have been of the following nature:

Year.	Islands.	Jutland.	Total.
1871	626,000	1,216,000	1,842,000
1881	460,000	1,089,000	1,549,000
1888	327,000	898,000	1,225,000

The number of sheep is less now than of horned cattle, a proportion plainly denoting the small share held by sheep in the agriculture of Denmark. In former days the position was quite otherwise. So long as wool was twice or thrice the value of butter the stock of cattle was generally found to be supplemented by a holding of fleece-growing sheep, and the numbers of these animals continued to increase; but with the decline in wool prices and a marked advance in the price of butter the retrograde movement soon set in, and, with the exception of the poor grazing districts in Jutland, the keep of sheep is now of very subordinate consequence in Danish agriculture.

Jutland's predominance in sheep stock, as shown by the following table, is maintained, not only when taken in proportion to the population, but also to the land area, viz:

Divisions.	Per 1,000 of population.	Per square mile.
	Number.	*Number.*
In the islands	359	1,373
In Jutland	968	1,959

The fine-fleeced sheep (merinos), which in former years held a relatively prominent position amongst the different races in the Kingdom, have now almost entirely disappeared. Now it is the English meat-producing animal which is used for crossing with the home breeds, and it may at least be said that, although the numbers have largely fallen off, the value of the flocks has been greatly enhanced by this judicious crossing of the breeds.

Lastly, the increase in the Kingdom's stock of swine has been very considerable in the last half of this century, the numbers on the three last stock countings having been as follows, viz:

Year.	Islands.	Jutland.	Total.
1871	253,000	189,000	442,000
1881	285,000	242,000	527,000
1888	399,000	372,000	771,000

During the last seven years the swine numbers for the Kingdom at large have thus been increased in the islands by 40 per cent., and in Jutland by about 54 per cent. Viewed in proportion to population or of land area, the numbers given in the counting of 1888 hold the following positions, viz:

Divisions.	Per 1,000 of population.	Per square mile.
In the islands	439	1,680
In Jutland	399	812

Swine fattening has received a very prominent development in the less fertile districts of Jutland since the construction of the State railways in that part of the Kingdom. Previous to the introduction of these railways there was not sufficient grain or strong foddering substance in the neighborhood for such an extensive course of fattening. These obstacles are now removed, the railways conveying to these districts of heath land all the grain they may require at comparatively small cost, taking back in return freight their pork and fattened swine.

HENRY B. RYDER,
Consul.

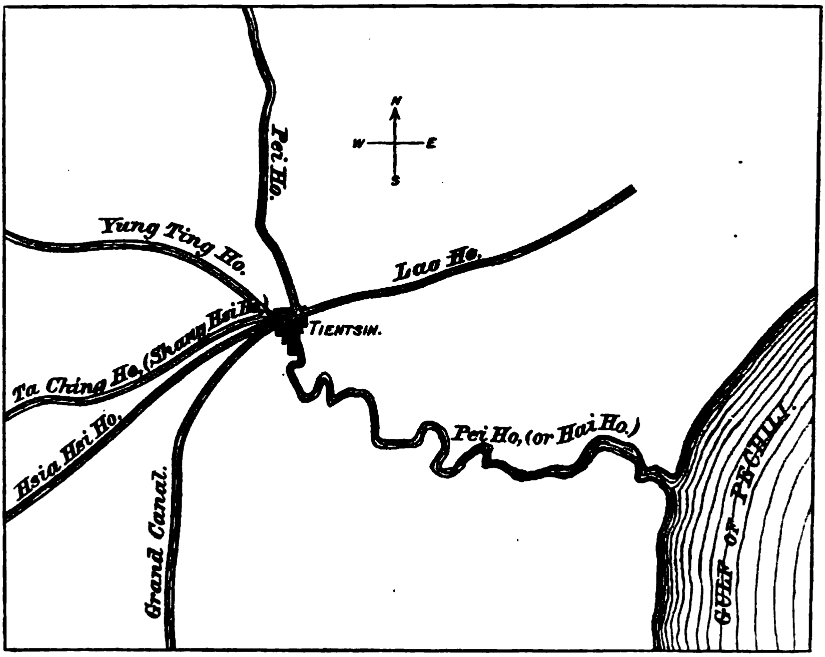
UNITED STATES CONSULATE,
Copenhagen, September 14, 1890.

FLOODS IN NORTH CHINA.

REPORT BY CONSUL BOWMAN, OF TIEN-TSIN.

I have the honor to report to-day a few facts concerning the disastrous flood which has overtaken the northern part of China.

The drainage of that part of the great Chinese plain which is situated north of the Yellow River for the most part centers at and above Tien-Tsin, and the accumulation of water is carried to the sea by the Pei-Ho, or Hai-Ho, between Tien-Tsin and Taku. In ordinary seasons this stream is filled to the brim by the July rains, but in a season of excessive rain-fall, like the present, the levees give way and the surrounding country is put under water. I have made a rough sketch of the river-courses in the neighborhood of Tien-Tsin to illustrate the above.



Our rains at Tien-Tsin began July 7, which is the usual time for the opening of the rainy season. On that day there fell 5.54 inches. On the 16th, 17th, 18th, 19th, 20th, and 21st of the month there fell 22 inches of rain, viz, 4.20, 6.80, 3.70, 1.60, and 5.70 inches, respectively.

Reports from the country north and northwest of Tien-Tsin indicate still heavier rains over the region drained by this system of rivers, though exact statistics are lacking.

By the 20th of July we were aware that a catastrophe was imminent, and on the following day the river-banks gave way on the eastern and also on the western side, just above the foreign settlement. On the eastern side the plain was covered with water as far as the eye could reach. On the western side part of the French concession was inundated and many Chinese houses were swept away. These two breaks did not relieve the pressure, however, for they were both below the junction of the rivers. On the 22d the levees of the Grand Canal, at a point distant about 7 miles from Tien-Tsin, gave way, and this saved the city of Tien-Tsin from destruction, but in doing so flooded a vast area to the south and west of us. At present the foreign settlement and the native city of Tien-Tsin are like an island in the midst of the waters.

The suffering of the villagers is extreme; their crops, and in many cases their houses, are entirely destroyed.

On the 28th of July a meeting of the foreign residents of Tien-Tsin was called to consider what measures of relief might be taken to alleviate the sufferings of the Chinese poor. I had the honor to preside over this meeting, and at my suggestion a committee was appointed to investigate the extent of the calamity. I can do no better than inclose the report of this committee.

The foreign residents intend to purchase grain for free distribution during the coming winter, and it is probable that we shall appeal to the benevolent in our respective countries to eke out the funds we are able to raise locally.

I will report again upon the condition of affairs when news from the interior regions has been more thoroughly collected and the full effects of the present disaster are more perfectly understood.

WM. BOWMAN,
Consul.

UNITED STATES CONSULATE,
Tien-Tsin, September 4, 1890.

SUBCOMMITTEE'S REPORT ON THE FLOODS AROUND TIEN-TSIN.

[Inclosure in Consul Bowman's report.]

The members of the subcommittee appointed to collect information respecting the extent of the calamity which has fallen on this part of the country have, by inquiry and personal investigation, obtained enough to enable them to make a preliminary report, which, however, it must not be expected can be very accurate in details when it is remembered how imperfect are the means of communication and how untrustworthy are the Chinese in forming estimates of any thing beyond their own limit of vision.

A glance at a map will show that, taking Tien-Tsin as the center of a circle with a radius of about 150 miles, all the water falling within the northwest quadrant should eventually find its way into the Pei-Ho just above the city of Tien-Tsin. This is what happens in good years, when the rain-fall is distributed over several months and the water-courses are able to hold the water flowing into them; but when, as it more often happens, the rain-fall comes all at once, so as to put too great a strain on the capacity of the streams, the banks are overtopped or else give way and the level country is flooded to a greater or less extent. The rivers which drain this section of the country, and which all meet just above Tien-Tsin, are, beginning with the Grand Canal and going round with the hands of the clock: The Grand Canal, which, from Lin-Ching-Chow to Tien-Tsin, is formed out of the bed of the Wei River; the Hsia-hsi River, the Shang-hsi River, the Hun or Yung-ting River, and the Pei-Ho.

This year the rains came late, and, when they did come, the year's supply seems to have fallen in less than a month. The mountainous districts to the north and west of Peking emptied themselves over the plains, which, in the vicinity of the sea, have no appreciable fall; so that on all sides to the west, north, and east of Tien-Tsin there is now a vast lake, whose contents in part will flow slowly to the sea, but of which, also, a large portion must remain until it disappears by process of infiltration or evaporation. Generally speaking, it may be said that all the country round, as far as the sea to the east and for a distance of from 40 to 60 miles to the west, north and south, is now or has lately been under water and the crops are lost.

Recently news has been received that the banks of the Grand Canal have burst in two or three places near Lin-Ching-Chow, and that the water pouring through the breach on the left bank is flowing towards the northwest of Tien-Tsin and must add to the inundations in that quarter. This new supply will take longer to exhaust itself than the floods which, coming from the neighboring hills, first overwhelmed our plains.

All the reports received from eye-witnesses go to show that the waters to the northwest of Tien-Tsin are flowing away in a southeast direction in an irresistible body, which moves across the course of existing rivers and even in places overcomes and diverts their current. The Pei-Ho above Tien-Tsin is carrying away but little of this water, much less than its proper share, for, through the breaches in its left bank, Pei-Ho water is pouring out on to the eastern plain to find its way into the Pehtang River.

The country immediately round Tien-Tsin has been very well explored on all sides. One party circumnavigated Tien-Tsin and the suburbs, making a circuit of about 30 miles. The plains all round were found to be flooded to a depth varying from 4 to 8 feet; where an embankment or a raised road might have barred their progress there was always found a breach through which the boat could he hauled up or shot through, as the case might be. The observations made by these gentlemen show clearly that the raised land on which Tien-Tsin and the suburbs stand divides the current of the flood into two streams. Along a line about west of Tien-Tsin the waters part, the greater portion flowing east across the embankments of the Hun-Ho and Pei-Ho, and the rest south across the embankments of the Grand Canal.

Another party went to the west past the Hai-Kwang-Ssu Arsenal, and entered the Grand Canal through the breach which is nearest to the city of Tien-Tsin. Proceeding west, they came to Yang-Liu-Ching, the town at the elbow where the canal makes a right-angled turn to the south. Here was found a large breach, and a few miles further on still another. The northern bank of the canal could scarcely be traced, and to the north no dry land was visible. Through the breaches just mentioned the water was rushing on to what may be called the Race-course Plain, the water to the north of the canal being 2 or 3 feet higher than the water to the south. The only outlet for the water issuing through these breaches is through the creeks which fall into the Pei-Ho in its lower sections. It is not until Pai-tang-kou is reached that the level of the Peiho is low enough to allow the floods to drain into it. Beyond Pai-tang-kou the plain drains into the river wherever there is an opening; but there is no other outlet to the sea in any other direction, for between Ma-chang, on the Grand Canal, and Hsin Cheng, on the Pei-Ho, there runs the Hsiao Chan Canal, with very substantial banks, which serve to dam up the water and prevent the plain draining away in a southerly direction, as it used to do before this Hsiao Chan was constructed. On the other hand, this canal is taking off a large quantity of water from the Grand Canal and leading it by a safe channel to the Pei-Ho at Hsin Cheng. Otherwise this water would flow on along the Grand Canal until it came to the breaches, and there add to the supply already on us. One gentleman explored this Hsiao Chan Canal by following the Grand Canal as far as Ma-chang and then going through with a strong current to the Pei-Ho at Hsin Cheng. In this canal the water-level was higher than in the plain to the north; and the country to the south, being protected by the creek embankments, had escaped the general inundation, and its flourishing crops are the one bit of bright color in this sad picture.

Another gentleman followed the course of the Pei-Ho upwards as far as Pei-tsang, and at intervals beyond Hsi-ku found breaches in the raised Peking road and in both banks of the Pei-Ho, through which the pent-up waters of the west were flowing in an easterly direction.

As regards the number of persons who will be in want until the water recedes, it is at present impossible to form an estimate; but some conception of the distress may be formed when it is remembered that what we see in our own neighborhood is but a specimen of what exists for quite 100 miles in some directions. The destitute in the villages of which Tien-Tsin forms the head-quarters are being attended to by the officials and the native benevolent societies. At one time there were thirty thousand refugees in and about the city—these principally women and children; but the officials, fearing disease, have taken steps to send them back to their homes. There is a central organization in Tien-Tsin, called the Ch'ou Chen Chü, through which official assistance is distributed. This committee collects information and receives reports from the outlying districts, and private charitable institutions, by co-operating with this central office, are enabled to know in what quarter their assistance may best be bestowed. Children and old men are the first to be relieved, then women, then able-bodied men. No attempt is ever made to exact any work from those relieved; it seems to be contrary to the feelings of both relievers and relieved. When a calamity occurs over which the people have no control it is their right to be fed by the authorities. It is the opinion of well-informed Chinese that any attempt to combine relief with labor will fail. The Tien-Tsin taotai, who is primarily responsible for the safety of the people, had recently some experience how strongly this idea possesses the people. Being appealed to by some villagers to protect their crops from the threatening waters, he repaired to the spot and took steps to strengthen their embankment. He provided the material, and urged upon the villagers that they should supply the labor. He even offered them what amounted to about half wages, but they claimed such high wages that he had to procure the labor elsewhere.

The general impression of the Chinese is that there is no keen distress at present, but that during the winter and spring there will be acute and wide-spread misery.

The various reports from which the above résumé has been compiled will be preserved, and are at the disposal of any one for further reference.

SCARCITY OF MEAT IN BAVARIA.

REPORT BY CONSUL MERRITT, OF CHEMNITZ.

Owing to the oppressively high prices at present obtaining in the larger cities of Bavaria, the question of meat food has recently again become one of prime importance, and various measures have been suggested with a view to reduce the cost of meat. The Bundesrath of the Kingdom of Bavaria has frequently been called upon to devise measures by which the importation of cattle from Austria-Hungary can be carried on with greater ease for the benefit of the larger cities.

The scarcity of cattle fit for slaughtering in the lower lands of Bavaria and the small number of such cattle which are brought to the abattoirs, or public slaughter-houses, in the principal cities of Bavaria has been the main excuse for the high prices which have heretofore prevailed. Recently a still further advance in prices has taken place. Internal economic conditions in Bavaria do not promise relief, inasmuch as the poor harvest of fodder in the years 1887 and 1888 compelled farmers to reduce their stock of neat cattle to such a point that it has since been impossible for them to supply the demand for cattle for slaughtering. Hence petitions have been repeatedly made to the Government, asking for relief for the larger cities and urging that the act of June 27, 1879, be so far modified as to permit the easier importation of neat cattle of every description from the grazing districts of Austria-Hungary.

Of late the petitions have been so numerous and so urgent that it is expected that the Bavarian Government will take action and do its utmost to change the present conditions of the meat food market, inasmuch as it is a matter of alleged serious dissatisfaction among the poorer elements of the population.

The following propositions will be brought to the attention of the Bavarian Bundesrath:

(1) Cattle intended for importation shall be accompanied by a certificate showing origin and good health.

(2) On entering Bavarian territory they shall be examined by official veterinary surgeons, and if passed by them—

(3) They shall be shipped by rail direct to place of destination and housed in the city abattoirs.

(4) They shall be in due time slaughtered, before which they shall be isolated from other cattle, and under no circumstances shall they be permitted to leave the abattoirs alive.

It is believed that the adoption of these propositions will enable the supplying of an abundance of meat to the inhabitants of the larger cities, which will, as a matter of course, afford direct relief to the smaller towns and the agrarian districts of Bavaria, thus causing a reduction in the prices of meat, or at least preventing a further advance.

From a sanitary stand-point the above-proposed regulations are believed to be amply sufficient to exclude diseased cattle. And, in closing, it may be remarked that in Austria-Hungary the conditions which caused the enactment of the stringent measures of June 27, 1879, no longer exist.

H. F. MERRITT,
Consul.

UNITED STATES CONSULATE,
Chemnitz, October 25, 1890.

Venezuela tariff.—I have the honor to inform the Department that, according to a resolution of the Federal Executive of Venezuela, the rate of import duties to be collected upon books of lithographed blank bills of exchange is 1 bolivar and 25 centimes per kilogram, being arranged in the fifth class of the tariff.—W. S. BIRD, *Consul, La Guayra, August 16, 1890.*

AGRICULTURE AND AGRICULTURAL IMPLEMENTS IN BRITISH GUIANA.

REPORT BY CONSUL WALTHALL, OF DEMERARA.

CULTURE OF THE SUGAR-CANE.

The culture of the sugar-cane is well known to be the chief, and, as regards exportation of its products to foreign countries, virtually the only, agricultural industry of British Guiana. The sugar estates all front on the sea-coast or the navigable rivers and creeks. They comprise an estimated area of 159,689 acres, of which about half is at this time in actual cultivation. (The area under cultivation in 1889 was estimated in a former report at 78,271 acres, but the colonial "Blue Book" for that year, since published, makes it 82,533 acres.) This area is divided among ninety-six estates of unequal extent. These estates—except where they have been subdivided or two or more united—retain the same boundaries, and, in general, the same names originally given them when first laid off, generations ago, under the Dutch, or, for a few years, French, possession of the country. The permanence of these boundaries may, no doubt, be attributed in a great measure to the fact that they are defined, not by fences or any movable landmarks, but by canals or trenches, with embankments and "kokers," or water gates, designed and constructed with great care, labor, and expense.

The system of dams, canals, drains, etc., employed for the protection of these lands—most of which lie below the level of very high tides—from overflow, for transportation of produce from the fields to the buildings containing the machinery for crushing the canes and converting the juice into sugar, and for draining off the superfluous fresh water in rainy seasons—all this has been described with some detail in the reports on irrigation and drainage and on canals and other water-ways, and is very clearly illustrated by the plan of a Demerara sugar estate accompanying the latter report.* It may, perhaps, however, contribute to a more thorough understanding of the subject to go over the same ground in the language of another writer by quoting the following from an official report on "Thorough Drainage" made by the then agricultural chemist of the colony more than forty years ago, but in all essential particulars no less applicable now than it was at that time:

PLAN OF A SUGAR ESTATE.

> The plantations, laid out for the most part by the Dutch, are on a uniform plan. They are generally narrow, rectangular strips of land, with a façade or water frontage on the coast, the rivers, or canals. The façade varies from 100 to 300 Rhynland rods (the rod being equal to 12.32 feet). Exceptional cases occur where, from an estate being prevented from extending far back, extra façade has been allowed, giving to the estate more of a square form.
>
> Every estate is bounded by four dams, the front dam excluding the sea, river, or canal, the back dam parallel to the former and excluding the bush water, which, in heavy weather,

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* These reports will be published in Special Consular Reports.

is very considerable and would inundate the cultivation. The clay thrown out in forming the adjacent canals or trenches affords the material of which the dams are formed. Along each of the remaining sides there runs a dam from front to back. These are usually termed side lines. They are common to two contiguous estates and prevent the influx of water from the sides. Thus the very long, rectangular strip of land is surrounded with dams, which, when kept free from bush, answer the purpose of a road round the estate; but the produce is brought to the buildings (often situated in front) by canals; in fact, water transport of produce is universal.

The arrangement of the navigation system is very simple. From front to back and right in the center of the estate there runs a dam, called the middle walk, with a canal on each side of it. These are termed center canals, and are wide enough to admit of two punts passing each other. The dam forms a path for the cattle that draw the punts. At regular and comparatively short intervals branch canals strike off at right angles from the center canals and proceed to within a rod of the draining or side-line trenches, which are parallel to the side dams before described and adjacent to them. These branch canals thus constitute the transverse boundaries of the fields, and navigation canals thus lie on three sides of every field and admit of canes being carried by a short path to the punts.

On some estates there is only a single center navigation canal. These canals are principally supplied by the rain, but in protracted droughts, and especially when they are shallow, they are liable to run short of water; hence, whenever access can be got to creek, lake, or fresh water, it is brought from behind to supply the navigation system. In other instances salt water has to be taken in from the front when a cane crop can not otherwise be got off the ground.

The drainage of an estate is equally simple. From back to front and immediately adjacent to the side-line dams run the two main draining trenches, generally dug considerably deeper than the navigation canals. The small drains, again, cut at distances of 2 to 3 rods apart, commence within a bed of the middle walk side of the field and terminate in the side-line draining trenches, being dug with a fall in that direction. The small drains are thus at right angles with the main draining trenches. In the front dam the sluices, or "kokers," are placed. Sometimes there is only one on an estate, but generally two—one at the end of each draining trench. The main draining trenches are generally connected together by a trench running along behind the front dam.

There is no such thing as general drainage or combination among proprietors, unless it be that several adjacent estates sometimes unite to cut a common canal to some lake or creek, from which fresh water can be obtained for navigation purposes. Up to the time of emancipation these were "company paths," consisting of a dam and a trench—the one forming a path into the interior of the country, the other serving as an outlet seawards for bush water when, in rainy seasons, it accumulates behind the back dams. These trenches or canals, however, from the lack of labor, have, in most instances, been allowed to silt up, so that in an unusually wet season there is greater pressure on the back dams than formerly and no compensation for the numerous small creeks, which, when the land was in a state of nature, delivered the excess of water, but which were necessarily obliterated when the land was poldered and reclaimed.

The estates are often of great depth. The original grants extended backwards 750 rods. No difficulty exists in obtaining the second grant or polder of another 750 rods, and when the proprietor can show that two-thirds of the first and second polders are in cultivation he may obtain a third polder, and so on.

It may be noted that the Government levies a small ground-rent or "acreage tax" on the additional grants here mentioned.

The foregoing extracts may be more clearly understood by reading them in connection with the map of a sugar estate already referred to as accompanying a former report.

The following extracts from a publication by a planter entitled "Demerara After Fifteen Years of Freedom" will afford a good general idea of the mode of cultivating a sugar plantation:

A sugar estate is divided into fields of from 5 to 10 acres in extent by the cross canals above mentioned, and the method of planting the cane is simple and easy when labor is at command. The brush-wood and grass, having been cut down and weeded, are piled into rows 6 to 8 feet apart across the intended beds into which the field is to be divided. These beds are found by digging open small drains 2 feet wide and 2 feet deep at intervals of every 30 or 36 feet across the entire field, beginning within a few yards of the canal in the center of the estate and running to the side draining trenches, into which they empty themselves. The soil from these small drains having been carefully thrown upon the beds so as to raise and round them off in the middle, narrow banks or ridges of earth are made across them from drain to drain, parallel to and equidistant between the rows of brush-wood and grass, and in these spaces between the banks of earth and grass the canes are planted in line, each line being 3 or 4 feet apart and each cane plant 9 or 10 inches from the next. The plants are produced by cutting off the tops or upper joints of growing canes into lengths of 10 or 12 inches, which are thrust in a slanting direction into the well-stirred ground, and in ten days or so the long grass-like leaves begin to spring from the eyes at every joint. These young canes require to be kept well weeded and molded about the roots from the ridges of earth or decaying grass on either side of them, which had been previously prepared for that purpose, and this must be repeated as long as there is room for the laborers to pass between the rows, which, according to the season, will be until the plants have obtained the age of six or eight months, after which time the spreading of numerous leaves from each stock will have covered the surface of the field with so dense a jungle as in a great measure to prevent any further growth of weeds.

When about nine months old the cane throws out its "arrow," a long seed-like stem surmounted with a tuft of waving, downy blossom. At this period the plant is poor and weak, and little more than a mass of water. It soon, however, recovers, and in twelve or thirteen months from the time of planting is considered at maturity, having then sometimes attained a height of 20 to 25 feet, but more frequently of 10 to 12 feet, about as thick as the wrist and divided into joints like a bamboo. When ripe, the canes are cut down to the very ground in lengths of 3 or 4 feet and thrown into punts, which are towed along the canal by mules or oxen to the wet dock at the door of the sugar-mill.

Immediately after cutting the large quantity of "trash" or dry leaves is rolled clear of the cane stump and heaped in rows, there to decay and form a rich manure for the succeeding crop. In a few days the stumps throw out their shoots, and the same routine of cultivation is repeated for twelve months more, any vacant space where plants may have missed being carefully supplied. The canes of the first year are called "plant canes," those of the second and subsequent years being distinguished as "ratoons;" and these ratoons have been known to be reproduced from the first plant for twenty years and upwards, the cane having been annually cut down and the stumps allowed to shoot again. But this continued reproduction from the same stock, which is now compulsory on the planters from the scarcity of labor, of course, causes the cane to degenerate and to yield less abundantly. An acre of newly planted land will give 2 tons of sugar for the first year, gradually falling off to not more than one-fourth of that quantity as the stocks become old; and, were there sufficient labor in the colony to admit of the land being replanted every third or fourth year, there can be little doubt that the present crops would be nearly doubled. The productive power of the greater part of the soil of British Guiana, indeed, appears to be unlimited. As an instance, it may be mentioned that on an estate in Esseguebo the return obtained in 1851 from certain lands which had been properly worked and perfectly drained amounted to a fraction within 4 tons of sugar per acre.

SUGAR PRODUCTION.

The total product of the cane crop of the colony can not be accurately ascertained, but some approximate idea of it may be obtained from the quantity exported, which for four years last past has been as follows:

Description.	1886.	1887.	1888.	1889.
Sugar:				
To the United States ....hogsheads...	47,524	67,392	57,408	58,930
To other countries........do......	76,659	82,467	62,726	69,410
Total........do......	124,283	149,859	120,134	128,340
Molasses:				
To the United States........casks...	1,167	111	272	148
To other countries........do......	18,834	18,955	26,332	22,634
Total........do......	20,001	19,066	26,604	22,782
Rum:				
To the United States........puncheons...	98	30	4	1
To other countries........do......	24,675	24,908	14,069	18,092
Total........do......	24,773	24,938	14,073	18,093

From this table it may be observed that an average of about 44 per cent. of the sugar exported from the colony is sent to the United States, but only an insignificant fraction of the molasses and rum.

AGRICULTURAL IMPLEMENTS.

These differ very greatly from those in use in the United States and other countries of the temperate zone. On account of the multiplicity of drains and other causes, animal power is not applicable to the cultivation of the earth, which is effected by the direct employment of human labor. Mules, and sometimes oxen, are used for towing the punts by which the crops are carried from the fields to the sugar-mills, but never for plowing. Steam plows and cultivators of the pattern known as Fowler's have been introduced, and are in use on three estates in the colony; but the general opinion of planters seems to be adverse to a belief in their utility. The work is still done, as in past generations, almost entirely by hand, requiring the use of implements especially adapted to this mode of cultivation.

Of these tools the principal are the shovel, the hoe, the cutlass, and the fork.

Of several patterns of the shovel, or "shovel plow," as it is sometimes called, the shape of that distinctively known as the "Demerara shovel" is convex on the back and concave on the front or upper side; in other words, a section of a hollow cylinder, with a socket attached for the long wooden handle to be inserted when in actual use. A variety of this known as the "shovel spoon" is also used for special purposes, differing from the ordinary shovel chiefly in being of greater convexity, rendering the transverse diameter proportionately shorter, the length, also, being somewhat less, and the lower corners rounded.

The varieties of the hoe in use do not differ materially from those employed on the farms, gardens, or plantations of the United States, unless, perhaps, in being generally lighter, the average weight being about 1 pound and 12 ounces.

The cutlass, or machete, has a blade from 18 to 22 inches in length, with a socket handle of 4½ or 5 inches, in which a longer wooden handle may be inserted if necessary, though this is rarely used. The blade is about 1¾ inches in width near the handle, widening to 2¾ inches or more toward the point, in approaching which the cutting edge, nearly straight throughout the greater part of its length, rapidly curves, giving the whole implement some resemblance to the Malay kris, though longer, thinner, and lighter. It is used for cutting canes and a variety of other purposes. Besides these legitimate industrial uses, it becomes a mischievous weapon in the quarrels that sometimes occur among the East Indian coolies.

The four-pronged agricultural fork, extensively used instead of the garden spade, needs no description.

These articles are all manufactured in the midland counties of England. It is the opinion of some of the leading importers here, however—and that expressed of their own suggestion, and not in response to inquiry by the undersigned—that American manufacturers might find it to their advantage to enter into competition with the British in this industry, just as it has resulted in the case of the Collins axes, which have well-nigh, if not entirely, superseded all others for the use of the wood-cutters in the forests of this colony. If considered advisable, specimens of the above-mentioned implements of the patterns and sizes most in demand can be obtained and forwarded for the use of the Government or the manufacturers.

Before leaving the subject of the culture of sugar it may give some idea of the amount of labor and capital required to mention that it has been estimated that on an estate producing 700 hogsheads there were 30 miles of navigation canals 12 feet wide and 5 feet deep for the transportation of the canes to the mill and 200 miles of drains, large and small. This, however, is probably somewhat above the average requirement.

MINOR AGRICULTURAL INDUSTRIES.

The conditions in this colony would seem to be admirably adapted to the culture of rice, but it has been much neglected by the landed proprietors, although in great demand as an article of food by nearly all classes of the inhabitants. Of late years, however, increasing attention has been bestowed upon it, chiefly in small holdings by the free coolies, or East Indian immigrants remaining in the colony after the expiration of their tenure of indenture. Nevertheless, in 1889, besides the domestic product, nearly 47,000,000 pounds were imported for use in the colony.

Indian corn is cultivated to some small extent, and about 3 000 bushels of it was exported last year. At the same time, however, the imports amounted to more than 33,000 bushels, nearly all of which was from the United States.

The opinion prevails here very generally—presumably founded on experience—that the corn produced in this climate can not be kept without being artificially dried, and the writer has found it difficult, if not impossible, to convince those interested that the corn of the United States is not habitually so dried in the grain.

Plantains constitute an important article of food for the inhabitants of the colony, and it is estimated that nearly 6,000 acres are devoted to their cultivation, The export of them, however, is comparatively small—amounting last year to only 4,482 pounds, valued at $908.40—and furnishes no adequate idea of the production or of the labor devoted to it.

Cocoa has received some little attention, varying much in extent from year to year. The exports, which in 1887 amounted to 13,091 pounds, fell to 14 pounds in 1888, and in 1889 were 4,650 pounds.

Coffee was formerly one of the great staples of the colony, the exports in 1830 amounting to 9,502,956 pounds. Only a small quantity, said to be of excellent quality, is now produced, chiefly for home consumption. The exports in 1889 were only 50 pounds.

The production, as well as the price, of the cocoa-nut has declined of late years; the exports, which in 1877 amounted to 1,443,341 nuts, valued at $28,862.40, or nearly $20 per thousand, having fallen in 1889 to 144,392, valued at only $2,058.98, or about $16 per thousand. A recent shipment of a few thousand to the United States (where few have heretofore been sent) as an experiment was invoiced at $12 per thousand. Notwithstanding this decline, it is the opinion of some intelligent land-holders that the culture will ultimately be remunerative, especially if prosecuted in connection with the manufacture of oil from the nuts, which has already been inaugurated on a small scale.

Cassava, both of the sweet and the bitter species, grows freely and sometimes spontaneously in this colony, and is much used in a variety of forms, but is the subject of no special care or systematic cultivation. The same remark may be made of the various species of yam, tannia, tous-les-mois, and other edible and starch-producing roots.

Bananas, oranges, limes, pine-apples, mangoes, guavas, and other tropical fruits are produced in abundance for domestic consumption with so little care or labor that they can not be regarded as products of organized industry. Within the last twelve months efforts have been made to establish the systematic cultivation of the banana for exportation to the United States in response to the offer of a Boston fruit company to furnish a line of steamers for their transportation on condition of receiving a subsidy from the colony and the guaranty of a certain number of acres to be regularly devoted to the cultivation of the fruit, pledging themselves to take the whole product at a stipulated price. The proposition, although not formally accepted, has been favorably considered by the colonial government; but difficulty has been encountered in the way of obtaining pledges for the requisite amount of cultivation, and the general impression seems to be that the project has virtually failed, at least for the present, when so much labor has been diverted from agriculture and fruit growing to the gold fields of the interior.

PRICES IN DEMERARA.

I inclose a tabular statement of the average retail prices of certain articles from memoranda kept in the principal market of Georgetown during the year 1889.

Average prices of various articles in the market of Georgetown, Demerara, 1889.

Articles.	Price.	Articles.	Price.
Beef:		Mutton ....per pound...	$0.29 to $0.30
Fresh................per pound...	$0.15	Plantains................per bunch...	.20 to .28
Salt..........................do......	.12	Pork:	
Bread...............per pound loaf...	$0.05 to .06	Fresh..............per pound...	.15
Butter:		Salt..........................do......	.12 to .13
Fresh................per pound...	.40 to .48	Potatoes:	
Salt..........................do......	.28 to .32	Irish..........................do......	.03 to .04
Cattle (horned):		Sweet........................do......	.02 to .02½
Imported	45.60 to 52.80	Rice ....do......	.04
Creole..................................	36.00 to 43.20	Salt..................................do......	.02
Cheese.....................per pound...	.24 to .32	Sheep:	
Cocoa..............................do......	.16 to .18	American..............................	12.00 to 14.40
Coffee..............................do......	.24	Creole..................................	3.60 to 6.00
Ducks.....................per dozen...	7.00	Sugar.....................per pound...	.04½ to .09
Fish:		Swine (live)...................do......	.06 to .08
Fresh...............per pound...	.06 to .08	Tea.................................do......	.40 to 1.90
Salt..........................do......	.06½ to .07	Tobacco..........................do.....	*.48
Fowls.....................per dozen...	6.00	Turkeys ....per pair...	5.76 to 6.00
Goats	2.40 to 6.00	Turtle....................per pound...	.16
Guinea birds ....per pair...	2.40	Veal ....do......	.23 to .25
Milk.........................per pint...	.06	Yams ....do......	.02 to .02½

*And upwards.

W. T. WALTHALL,
Consul.

UNITED STATES CONSULATE,
Demerara, September 17, 1890.

BEET SUGAR.

REPORT BY CONSUL MERRITT, OF CHEMNITZ.

Sixteen millions of dollars is the sum of money, in round figures, which the United States sent to Germany to pay for beet sugar bought during the fiscal year ended June 30, 1890. Every pound of the sugar paid for by the $16,000,000 above mentioned was made from sugar-beets grown in Prussia, in a latitude exactly on a line with the frozen regions of Labrador. There are within the United States, lying between the thirty-eighth and forty-second degrees of latitude, a great many millions of acres of land which are as thoroughly adapted to the culture of the sugar-beet as any land on earth. The question naturally occurs to the mind of an American, why should the $16,000,000 paid for beet sugar be sent to Germany, instead of being paid to American agriculturists in the valleys of the Ohio, Mississippi, and Missouri rivers? It is a subject of profound interest, and has recently been considered by Congress as one of paramount national importance. It is a fact which no one will care to dispute that the United States is the greatest consumer of sugar in the world to-day. The consumption of sugar per capita per annum may be said to be as follows in five countries from which statistics are obtained: England, 60 pounds; United States, 44 pounds; France and Switzerland, 26 pounds; Germany, 18 pounds. Hence, with an enormous majority of population, the United States may be called the greatest sugar-consuming nation on earth.

EARLY NOTES ABOUT SUGAR.

One of the most interesting chapters in the history of every great invention or discovery is the recital of facts which show the enmity, obstruction, and incredulity which have had to be encountered and overcome before the world has been willing to accept the blessings and benefits which progressive, enlightened, and scientific minds have placed within the reach and at the service of mankind. Well known, indeed, are the stories of the struggles which everywhere occurred when the potato was imported; the exasperating fanaticism manifested to check the spread of the use of tobacco; the innumerable statements made to prove the evil effects of the use of coffee, tea, and chocolate; not to mention the mad terror which seized on certain portions of the population when railways and other wonderful and splendid inventions were put in operation. But success was finally achieved, and our race is bettered by it. Much less is known regarding the struggle through which sugar went, or the misrepresentations and defamation which were hurled upon it, before it rose from the position of a seldom-used and luxurious "salt" to be one of the most popular, necessary, and comfort-giving articles used in domestic economy.

The use of sugar in Europe was for long years most notably restricted. This entire portion of the globe was not consuming more than 1,500,000 meter centners per annum during the middle portion of the last century. The sale of sugar was a privilege of druggists in France until late in the seventeenth century. This monopoly did not tend to make the price of sugar cheap, as druggists in those days were not noted for low prices to any greater extent than they are at the present time; and it is doubtful if Scarron, the comedy writer, did not do his thrifty sister injustice when he accused her of stinginess because she made use of a sugar bowl with unusually small sifting holes in its top. With people who were not in independent circumstances sugar was at that time much more of a luxury than are champagne or truffles at the present time.

In his "Physiology of Tastes," published in 1800, Brillat-Savarin says:

> For more than eighty years the droll remark held good that the use of sugar injured a man only as far as related to his pocket-book. Since then, however, the use of sugar has increased day by day until it has become so common that all well-to-do people spend annually more money for sugar than for bread.

Sugar was regarded with the greatest distrust. One declared that it overheated the system, another that it congested the lungs, others that it was a direct cause of apoplexy. Many natural philosophers of the seventeenth and part of the eighteenth century who were inexperienced in chemical and medicinal experiments passed severe sentence in erudite (?) discourse, endeavoring to show that sugar was altogether and utterly destitute of good qualities. Kunkel von Löwenstjern declared openly that sugar was, without doubt, injurious, because in an experiment he had made sugar had accelerated fermentation, and hence sugar would bring the human body into a state of pernicious fermentation, accompanied by a host of stomach diseases. The equally well-known English scientist Boyle, discoverer of the composition of atmospheric air, arrived at a similar conclusion, particularly on account of his discovery that all sweet and farinaceous substances are susceptible of fermentation.

Garenzieres had the courage or audacity in 1647 to make the monstrous declaration that sugar was not only not nutritious, but that—

> It is a poison; and no better deed can be done than send it back to India, from whence it came, because only by that action can consumption, which its immoderate use has developed, be checked.

Willis charges sugar with being responsible for about every ill that flesh is heir to, while Pauli charges that it heats the body inordinately, "to the imminent danger of inflamed lungs." Ray, Hermann, and Lemery attacked sugar from different directions, while, in conclusion, Beckmann, in his "Supplement to the History of Great Discoveries," says that for doves, pigeons, lizards, frogs, and bees sugar is poison, but that for canary-birds it is healthful, on account of which canary-birds are called "sugar birds."

In all epochs and ages the war against sugar has been a "fight with windmills." And sugar, which was once treated with hostility and discredit, has taken its proper place in the front rank of human necessities and comforts. Its use and its production seem unlimited, for, while in 1876 the entire sugar product of the world was 31,000,000 meter centners, in 1884-'85 it had reached the enormous volume of 54,000,000 meter centners, and has been increasing annually since then.

THE DISCOVERY AND DEVELOPMENT OF THE BEET SUGAR INDUSTRY.

The earliest authentic record of beet sugar proves it to be a discovery of a learned German, Dr. Andreas Sigismund Marggraf, professor of chemistry and a member of the Berlin Academy of Sciences. He was born in Berlin March 3, 1709. In the records of the Berlin Academy of Sciences is a paper prepared by Dr. Marggraf detailing in full his discovery of sugar in beets, which was identical with that obtained from sugar-cane. Dr. Marggraf discussed in his treatise the propriety of attempting to make beet sugar, and sought to prove that profit could be derived from the undertaking. Among other things, he said:

> It must be apparent, from the practical tests mentioned, that sugar can be as successfully made in this country as where the sugar-cane grows.

It is not of record that the learned Professor Marggraf pursued his researches further than the theoretical disclosures mentioned in his dissertation above alluded to; but a pupil of his, Franz Carl Achard, who became deeply interested in the subject, developed the idea of beet sugar making and proved that it could be done with profit. In 1799 Achard addressed a petition to Frederick William III, King of Prussia, and besought the patronage and protection of that monarch in the prosecution of beet root culture and the manufacture of beet sugar. Being finally persuaded of the merits of the discovery, the King subsidized the industry with $35,000. This fund was expended in the purchase of land in Lower Silesia, where, in 1801, a factory was built, and in the following year the process of making beet sugar began. Within a year six other factories were started—one in Russia, two in France, and three in Prussia. Then came the Napoleonic wars, and the development of the beet sugar industry was for many years at a stand-still. Achard was also the victim of a disastrous conflagation in 1809 which entirely destroyed his factory and machinery. Although heavily involved in debt, Achard had both faith and courage and set himself to work in the direction of rehabilitation. The King released him from the payment of his former loan and advanced him further financial aid, with which Achard founded a school for practical instruction in the industry of beet sugar. Fortune did not smile on him, however, and at the time of his death, in 1821, Achard had not had an opportunity to see the industry to which he had consecrated the best years of his life in a flourishing and prosperous condition.

In France a factory was established on the Achard system at Lille by Crespel Delisse, whose untiring energy, great capability, and remarkable sagacity rescued the sugar-beet industry from depression and dissolution and placed it on a prosperous footing as one of the great and successful enterprises of the age. In 1830 Delisse was owner of several out of the hundred and more factories in operation, and was recognized as a great authority and honest counsellor in matters pertaining to the industry.

THE PRESENT CONDITION OF THE BEET SUGAR INDUSTRY.

Subsequent to the time last mentioned the making of sugar from beets has made rapid progress. Scientific men have bent the best of their powers and energies to bring about methods of treating the vegetables and extracting the utmost saccharine from them and for the invention of improved machinery for diffusion, evaporation, and kindred uses. Flattering successes and triumphs have rewarded them. The results of philosophic experiments as to the quality of beets best adapted to certain conditions of soil and climate and the chemical researches which have been made for the purpose of discovering what fertilizers are the best have entirely covered these questions. The results of these exhaustive investigations have been made public, and can be known by all.

The output of beet sugar from the many hundreds of factories in Europe for the "Kampaign" of August 1, 1889, to July 31, 1890, is one of the greatest ever known, and rivals the product of the cane sugar districts of all parts of the world both in quality and amount. The cost of production has been reduced to less than that of any former year. This is not attributable to a larger development of saccharine in the beets, but is the result of scientific and technical improvements in the management of the factories. Formerly it was calculated that 12½ pounds of beets were required to produce a pound of sugar; now sugar can be produced in proportions much more favorable. In the lowest estimate 832 pounds of beets make 100 pounds of sugar, while the highest estimate requires only 10½ pounds of beets for a pound of sugar.

There are about thirty kinds of beets which are grown for the sugar factories of Germany. Each kind has some claim of special merit for special localities. Much depends on the kind of soil to be planted and in the selection of the beets to be sown. Among the most necessary elements in the successful cultivation of sugar beets are the richness of the beets in saccharine, the procuring of the seed from the most reliable sources, the proper preparation of the soil, the use of the most improved fertilizers, and the careful attention to and harvesting of the crops. A visit to the beet-growing districts will disclose that the best crops are obtained from a loose, sandy loam called a mild soil. The roots grow deep and require soil prepared fully 12 inches deep supplemented by a subsoil. Care is observed to avoid wet soil. Certain districts have certain regulations regarding the width between the rows and the distance between the beets in the rows. All are governed by fixed intervals, and it is stated that the nearer the beets grow together the more saccharine they contain but the smaller they grow. On the better class of soils beets should be planted closer than on poorer soils if uniformity of size is desired. Growing of beets is decidedly beneficial to the soil and improves it for cereals. Crops should be reasonably alternated in order to rest the soil.

THE FUTURE OF BEET SUGAR IN THE UNITED STATES.

The future of beet sugar in the United States is problematical. It can not be gainsaid that the climate and soil of large portions of the States of Ohio, Indiana, Illinois, Missouri, Iowa, Kansas, Nebraska, Wisconsin, Minnesota, and many other districts are perfectly adapted to the culture of sugar-beets. The Congress of the United States has recently taken novel and special action, which would give encouragement and protection to the enterprise should the American agriculturists embark in the beet sugar industry. All machinery needed to convert the saccharine of beets into fine sugar is, by act of Congress, permitted to be imported free of duty from now on until the 1st day of July, 1892. A bounty of 2 cents per pound will be paid by the Government of the United States to the manufacturers of sugar for an indefinite period of time.

It is likely that the Government would do more. In Louisiana, on the Magnolia sugar plantation, owned by ex-Governor Warmouth, lying some

40 miles south of New Orleans, on the Mississippi River, the United States has, within recent years, erected a magnificent experiment station in the interests of cane sugar production. The vast benefits of this station to sugar growers can be relied upon to induce the Government at Washington to consider a proposition for the establishment of a similar station in the interests of a beet sugar industry, should such an undertaking be entered upon by the farming community of our country, and the production of sugar from beets can be easily transferred to that belt of country so admirably adapted to its culture which has been mentioned before. The information and experience gathered through all the costly experiments and mistakes which have been made and paid for during nearly a hundred years can be turned, without cost, to the benefit of our people, and profitable employment can be given to many thousands both winter and summer.

It would not be difficult to enter upon this industry at once. In order that all interested might share in the undoubted prosperity which would follow, the plan here submitted is modestly offered. A stock company, with a capital stock of $250,000 in 2,500 shares of $100 each, could be organized. Three-fifths of the shares could be made "beet shares" and two-fifths cash shares. Ten or 20 per cent. of the beet shares could be paid in cash, and the balance might be gradually deducted from the money due the share-holders for the beets delivered by them to their factory. The cash shares could be paid for in such manner as determined upon. The management of the concern is to be determined upon by the share-holders. This plan has been found to work with unqualified success in Germany, where many factories are in operation on this basis.

The bounty to be paid by the Government insures at least $4 per acre. Besides that small sum, the agricultural element will receive compensation for the beets raised, also a share of the residue from the beets after using, and which is very good fodder, and, what is of equal importance—in fact, the the best of all—a share of the dividends. As has been heretofore stated, beet culture improves the soil, which is a consideration by no means to be underestimated nor overlooked.

In the beginning of this it is stated that the sum of $16,000,000 was paid by the people of the United States to the beet-sugar makers of Germany within one year. This sum is nearly three times as much money as our people paid for any other given article imported from Germany, cotton having come next with $6,000,000.

It does not seem proper nor consistent that an agricultural country like the United States should be dependent for any article of purely agricultural character on foreign countries, especially when the United States has fully one hundred times as much land adapted to the production of that article as is available in the country from whence the article comes.

It would be a matter of justice and equity, as well as of patriotism and profit, if the people of the United States (who have always treated, through their representatives, the people of all foreign nations with scrupulous fairness and with no wrongful discrimination against any) should convert some part of the vast domain now used for growing corn to fatten and nourish the splendid pork of our Western States into acres of sugar-beets. In European beet sugar countries American pork is forbidden entry.

H. F. MERRITT,
Consul.

UNITED STATES CONSULATE,
Chemnitz, October 25, 1890.

AMERICAN INSURANCE COMPANIES IN FRANCE.

REPORT BY COMMERCIAL AGENT LOOMIS, OF ST. ETIENNE.

A large portion of the French press is now engaged in an attempt to excite its readers into a state of revengeful fury over the so-called injustice of the recently enacted tariff law of the United States.

Fiery articles, pregnant with extravagant fancies concerning the methods and intentions of the Congress of the United States, have appeared in this district and elsewhere in France with so much frequency of late that the French people are beginning to think they have been most shamefully discriminated against by the Government of the United States, and a sentiment in favor of active commercial retaliation has undoubtedly crept into existence in all the industrial communities.

This sentiment is not, it is true, strong enough at present to be formidable; but, if a continuation of this press fanning be kept up, no one can say what its ultimate development will be.

The cry for specific retaliation was raised by the Mémorial, an influential paper published here and circulating in a laboring community of 200,000 souls. The American interests which have been marked for attack by the papers are those represented by United States insurance companies doing business in France. The volume of business of this sort transacted here amounts to $30,000,000 annually, so that the American interests threatened are very considerable, and I have thought it well to make this report.

Some of the French journals are said to be encouraged in their demands for retaliation on the American insurance companies by local companies engaged in the same line of business.

I submit herewith a translation of the first article which appeared on this subject in St. Etienne, entitled "A Tooth for a Tooth:"

A TOOTH FOR A TOOTH.

[Editorial from the Mémorial de la Loire, of St. Etienne.—Translation.]

Such customs tariffs possess no longer a protectionist character; they are purely and simply prohibitive. The Americans do not, it is true, endeavor to conceal their intentions; they admit very frankly that they mean to close the markets of the United States to the products of European industries until they may be able, by the constitution of a pan-American customs league, to close the markets of the whole of the American continent. The blow struck at the European industries by this last action of the United States Government is disastrous to every one of the European nations, but more particularly so to France, for this country sells to the United States annually close on 275,000,000 francs, representing 11½ per cent. of its total exportation.

The Americans are persuaded that it will be impossible for us to resort to reprisals. They think that they can do whatever they like against us without having any thing to fear, for it is easier for them to do without the manufactured European products than it is for us to do without the mining and agricultural products of their country.

It is very possible that they labor under a delusion, as, if we liked, we could retaliate and fire blow for blow, eye for eye, and tooth for tooth.

For instance, there exist in France important American insurance companies, which realize very large profits on a very extensive business. These companies have their central offices in America, but do the most of their business in France, and enjoy a privileged position far beyond that of the French companies, for these latter are obliged by law to place their capital in real estate, which does not produce more than 4½ per cent., while the American companies can place the money confided to them by their clients where they like and draw large profits; consequently, it would be only just that foreign insurance companies should be obliged to submit to the same law, that is, that they should be compelled to place their money in real estate in France or in some one of the railways garantied by the State.

The Figaro, of Paris, four days ago published in a conspicuous manner a leading article which was almost a reproduction of the one which first appeared here in the Mémorial. The Figaro, in concluding its article, says:

If the French Government will retaliate in this sense on the American insurance companies, it will be duly backed by public opinion. The Americans did not wait and say to us "Gentlemen, have the kindness to shoot first," but they fired without warning. We would be great fools if we did not return their fire with interest. In a serious matter of this sort there is no room whatever for sentiment.

FRANCIS B. LOOMIS,
Commercial Agent.

UNITED STATES COMMERCIAL AGENCY,
St. Etienne, October 31, 1890.

TRADE AND TRANSPORTATION OF THE AMAZON VALLEY.

REPORT BY CONSUL KERBEY, OF PARA.

I have the honor to submit herewith the following summarized report on the present trade and transportation of the Amazon valley, the data for which I have personally secured from official sources:

THE RUBBER TRADE.

The great principal business of this valley is India rubber, almost every thing else hinging upon this important article of commerce, which is indigenous to this country, the only labor required in its production being that of the collection of the milk of the tree by the natives and its coagulation, by smoking, into the crude form suitable for transportation, and somewhat similar to the turpentine and resin industry of our Southern States.

Probably the most valuable cargoes afloat on the oceans are those contained in the bottoms of the steam-ships that sail weekly laden with India rubber from this consular district. An average cargo for the United States may be estimated at about $500,000.

The market value of fine rubber at this writing is 3 milreis per kilogram (equal to about 61 cents per pound). The coarser grade is 2 milreis per kilogram (equal to about 41½ cents per pound).

Duties.—The Brazilian export duty is 21 per cent. of the official value, the latter being fixed every Saturday for the coming week according to the average prices paid during that week. This duty is levied as follows: Nine per cent. for the benefit of the General Government at Rio de Janeiro; 12 per cent. for the benefit of the state government of Para. In addition to this there is also a municipal export tax imposed at the rate of 17 reis* per kilogram.

MINOR PRODUCTS.

There are some hides and nuts and cacao exported from Para, but, as previously stated, the principal business is based on the handling of the rubber. Practically nothing is cultivated in this valley, which nature seems to have so bountifully supplied with a rich soil and the necessary warmth and humidity, except, perhaps, some sugar-cane, which is used in the manufacture of "cachaça," or native rum, the home consumption of which exceeds the production, a little tobacco of very strong quality, and a fractional part of the "farinha," or mandioca meal, of the country, and the fruit thereof. About every thing necessary for the civilized life is therefore brought from other lands and pays a heavy import duty.

CUSTOMS RECEIPTS AND DUTIES.

The import and export duties collected at the Para custom-house during the month of September last exceeded $500,000. A new tariff for import duties goes into effect on the 15th of November, which rather increases the rates, as all import charges are made payable in gold at par.

Flour.—Flour, of which Para consumes about 5,000 barrels per month from the United States, pays an import duty at the rate of 16 reis per kilogram, which, with some customs extra, brings the charges per barrel of 90 kilograms to 1,660 reis. The Government recently increased its duties on flour from 10 to 16 reis.

Lard.—Lard pays duty at the rate of 200 reis per kilogram, which, with the usual customs extra, brings the duty per barrel to 4,040 reis a barrel (or keg) containing 23 kilograms.

Bacon.—Bacon is rated at 120 reis per kilogram, and, with the extras added, the duties amount to 3,320 reis per barrel (or keg) of 40 kilograms. Of this duty 20 per cent. is payable in gold at par. All import duties go to the General Government at Rio de Janeiro.

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*1,000 reis=1 milreis=54.6 cents.

AMAZON TRANSPORTATION.

Para occupies the same position relative to the Amazon valley as does New Orleans to that of the Mississippi and Ohio, and stands at the gate-way of its only route of communication with the rest of the world. To collect from the 50,000 miles of inland navigation their crude rubber, as well as to distribute the necessary supplies that are received in exchange for it, necessitates an extensive system of river transportation.

The Amazon Company.—A large part of this service has been performed acceptably for many years by the Amazon Steam Navigation Company (limited), an English corporation with a cash capital of £625,000. I am indebted to Mr. Melville Marrack, the courteous assistant general manager of the company at this point, for some interesting data in relation to the history and present status of the company, the extent and ramifications of which will, no doubt, be an interesting surprise to the great number of our people unfamiliar with the extent of the Amazonian valleys.

This enterprise was originally founded as far back as 1853 under the style of the Companhia de Navegação e Commercio do Amazonas, which was bought by the English company in 1872. In 1874 they bought up the two opposition companies then existing, *i. e.*, the Companhia Fluvial Paraense and Companhia Fluvial do Alto Amazonas. Steamers have been added from time to time as the requirements of the enormously developing trade demanded, until at the present time their fleet comprises some thirty steam-vessels, all of which are built for this trade and admirably adapted for the service, both in the carrying of passengers and cargo.

This company, although it does not do nearly all the river transportation, still holds the balance of power, and, in a measure, controls the traffic of the Amazon and its many tributaries in a manner satisfactory to the Brazilians, who award them liberal subsidies.

A rough estimate of the extent of business may be gathered from the fact that the mileage navigated per annum amounts to considerably more than 450,000 miles. Their steamers reach, by Amazonian waters, the distant countries of Peru (at the base of the Andes), Bolivia, and Venezuela.

The following is a list of the steamers owned by the Amazon Company, as it is always called, with a statement of the navigation performed: *Acre* (American built), side wheel; *Ajudante*, screw; *America*, stern wheel; *Andirá* (American built), side wheel; *Cametá*, side wheel; *Colibri*, stern wheel; *Conde d' Eu*, twin screw; *Dom Pedro II*, side wheel; *Esperança*, twin screw; *Flamingo*, twin screw; *Guarany*, twin screw; *Içá*, side wheel; *Imperatriz Thereza*, side wheel; *João Alfredo*, twin screw; *João Augusto* (American built), side wheel; *Juruá* (American built), side wheel; *Juruty*, screw; *Mauá*, side wheel; *Para*, side wheel; *Perseverança*, twin screw; *Princeza Isabel*, twin screw; *Rio Branco*, twin screw; *Sabiá*, stern wheel; *Santarem*, twin screw; *Siqueira Mendes*, twin screw; *Tabatinga*, twin screw; *Tucunaré*, twin screw; *Purús* (tug-boat), screw; *Carnapijó* (tug-boat), twin screw.

The schedule is as follows: Three voyages per month from Para to Manáos, 927 miles; 1 voyage per month from Para to Itaituba, 656 miles; 1 voyage per month from Para to Juruty, 676 miles; 1 voyage per month from Para to Maués, 765 miles; 2 voyages per month from Para to Mazagão, 630 miles; 1 voyage per month from Para to Baiáo, 190 miles; 2 voyages per month from Para to islands, 505 miles; 2 voyages per month from Para to Rio Xingú, 590 miles; 38 voyages per annum from Para to Soure, 25 miles; 1 voyage per month from Para to Rio Purus, 2,009 miles; 1 voyage per month from Para to the Rio Madeira (via Manáos), reaching Santo Antonio, from whence canoes take cargo to Bolivia, 1,723 miles; 1 voyage per month from Para to Iquitos (Peru) via Manáos, 2,079 miles; occasional voyages from Para, twice a month from Manáos to the Rio Jurua (at all seasons the steamers reach Marary, 2,010 miles from Para, and at high river go up about 1,600 miles further); one voyage per month from Manáos to Santa Isabel, on the Rio Negro, from whence canoes take cargo to Venezuela, 423 miles; 1 voyage per month from Iquitos (Peru) to Jurimaguas (work done by stern-wheel steamer), 500 miles; a steamer that makes two trips daily to Pinheiro, 7 miles, and once daily to Mosqueiro, 15 miles.

On the Rio Purus at all seasons the steamers reach Cachoeira, 2,009 miles from Para, and at high river they navigate the Alto Purus, Rio Pauhiny, and Rio Acre, the highest point reached being calculated at fully 1,000 miles above Cachoeira. During low river the navigation on these upper rivers, which heretofore has been done by a small twin-screw steamer, will henceforth be done by a light-draft, stern-wheel steamer.

Companhia Para e Amazonas.—This company was inaugurated with a capital of 1,500,000 milreis, mostly native, in 1884. The capital has since been reduced to 733,250 milreis. The present directors are Domingos José Dias, João Gualberto da Costa e Cunha, João Lucio de Azevedo, Francisco Gaudençia da Costa, and Emilio Adolpho de Castro Martins. This company has been embarrassed by serious difficulties, among which one of the principal has been the powerful competition of its well-subsidized rival, the Amazon Company. Its policy at first was not to ask for any subsidies, but it now receives 48,000 milreis per year from the state of Para as a subsidy for the monthly voyage to Santa Julia and Maués. This company owns eight good steamers. The American built are the fastest running and lighter draft, being 150 feet in length, while the English built are 160 feet. The following is the list:

Name.	Where built.	Tons.
Acara	England	500
Apurinan	United States	450
Araguay	England	500
Yaco	United States	450
Oyapock	England	500
Para e Amazona	do	500
Aripuanan	United States	450
Paumary	do	450

The navigation performed by the company, besides some extra trips in special circumstances, particularly voyages to the Rio Purus when the water first rises, is as follows:

	Miles.
Two voyages per month to islands	500
One voyage per month to Rio Purus	2,000
One voyage per month to Rio Madeira	1,723
One voyage per month to Santa Julia	765

Empreza de Navaegação a Vapor Marajó e Tocantins.—This is an enterprise of private capitalists, the proprietors being the Parão de Cametá and Antonio José de Pinho, the latter being the business manager. It was inaugurated in 1874. Capital is not stated.

The lines of this corporation all receive subsidies, except the one to the Rio Tocantins. The annual aggregate thus received from the state of Para is 150,000 milreis. As its name indicates, its operations are confined to the lower Amazon, with short, frequent voyages; no mileage given. The following is a list of the steamers owned and run by this corporation:

Name.	Where built.	Tons.
Vizeu	England	400
Trombetas	United States	300
Parintins	do	200
Arapixy	do	180
Xingu	do	133
Bragança	England	200
Marary	United States	120

There are seven different lines, making frequent and stated voyages under contract from Para to each of the following points: Maués, Chaves, Souzel, Rio Jary, Arary and Cumarú, Rio Tocantins, Amapá.

Miscellaneous steamers.—Besides the forty-four steamers mentioned as belonging to the three steam navigation corporations above mentioned, there are twenty-four others, including steam-launches, from 400 tons down, registered and owned by private parties in Para and doing business constantly in Amazon waters.

The city of Manáos is also the head-quarters of a small steam navigation company which runs about half-a-dozen steamers, the data of which are not at hand. Other small private steamers are also owned there.

The city of Santarem should also be mentioned as having several steam-launches built on the spot by an enterprising American, Mr. Richard T. Henington, located there.

Sail and oar.—As water transportation is the only sort that exists in the Amazon valley, it is evident that everybody is dependent on steam, sail or oar for getting about. So there are thousands of small sail-boats used to supplement the lack of steam communication on short routes, which, in the near future, must give place to steam when a liberal governmental policy, which is already beginning to dawn, shall really dominate in the Amazon valley.

Lloyd Brazileiro.—An important part of the carrying trade on the lower Amazon, from Para to Manáos, is being done by the Brazilian steam-ship company Lloyd Brazileiro, called until quite recently a Companhia de Navegação a Vapor Brazileiro. Its head-quarters are at Rio de Janeiro. The managing director is the Barão de Mendes Totta. The company owns and runs seven fine steamers of 1,999 tons each, all built in Glasgow, Scotland. The names of the vessels are the following: *Brazil, Alagoas, Maranham, Manáos, Espirito Santo, Pernambuco, Para.* These steamers leave Rio de Janeiro generally on the 1st, 10th, and 20th of each month and touch at the following ports: Espirito Santo, Bahia, Alagoas, Pernambuco, Parahyba, Rio Grande do Norte, Ceará, Maranham, Para, and Manáos.

This company receives a goodly subsidy from the General Government, the exact amount of which the agent at this port was not able to state. They also receive a subsidy of 7,000 milreis per month from the state of Amazonas. They accept freight only for the ports at which they call, undertaking no transfer of freight to other lines. One consequence of this regulation is that they bring no freight at all down from Manáos, though they usually take a good cargo up from Para. In view of their Amazonian subsidy, they are able to keep their rates for freight and passengers between Para and Manáos 20 per cent. below those of the Amazon Company between the same points. Between Para and Manáos they do not stop, making the upward trip in four days and the down trip in three. Fifteen days is the regular time for the voyage between Para and Rio de Janeiro by their line, with its eight intermediate ports of call.

Santos line.—The same company has another line of steamers running from Rio de Janeiro to Santos, but the agent of the company at this port is unable to give any exact information with regard to it.

OCEAN TRANSPORTATION.

English companies.—The valuable carrying trade with foreign countries from the Amazon and north Brazil has been conducted almost entirely for some years by two English companies, viz, the Red Cross and Booth lines. The fleet of each of them comprises ten first-class steamers, which have regular sailings under mail contracts from points in north Brazil only to Europe and the United States.

American line.—The American line, under the title of the United States and Brazil Mail Steam-ship Company, more recently established, carries the United States flag over 6,000 miles to all of the sea-ports in Brazil, going as far south as Santos, below Rio de Janeiro. Para, the sea-port of the Amazon, is just about their half-way stop; so that, practically, north Brazilian ports are not adequately served at present by the fewer ships of the American line which call at Para on their way south and on returning at long intervals. It is conceded that the ships of the American line, as it is called here, are the most elegant that come to this part of the coast, and the Brazilians are quite proud of their regular visits from the neighboring republic. They have a subsidy from the Brazilian Government, and are under contract to serve as transports in case of war.

Rubber is a valuable article of export that can not be stored to await the sailings of vessels, as the shrinkage is quite considerable. The crude rubber that is brought here in its natural damp or fresh state is sold at its weight in Para, the purchaser in New York receiving the more completely dried article at a reduction in weight equal to 10 per cent. For this reason the rubber shippers require frequent, quick, and regular transportation, and find that the competition of the three lines is to their business advantage in many ways.

Irregular sailings.—In reference to what may seem to be irregularity in the date of sailing of the English ships, it should be explained that those short postponements are usually made in the interest and always at the special request of shippers to the United States and at the expense of the steamers, because of their desire to get off their hands all the crude rubber in stock on account of depreciation by shrinkage.

It frequently occurs, also, that the sailing date advertised for the last days of the week is also changed to the Monday of the coming week, in order to take any advantage of a lower value for the Brazilian export duties. The official value is calculated on Saturdays on the basis of the average prices paid for the week, and sometimes the difference is such that the exporters prefer their shipments delayed, so as to take advantage of the reduced values.

Red Cross line.—The Red Cross line is a private corporation owned by R. Singlehurst & Co., of Liverpool. It is important to note that this firm has been established over fifty years in their exclusive trade with north Brazil, their large sailing fleet being replaced by steam in 1869. They have branches at Maranham and Ceará, on the north coast, and extend their facilities 1,000 miles up the Amazon River to Manáos, an important shipping point in the interior, whence large ocean vessels take direct cargo to Europe.

The steamers of the Red Cross line are as follows:

Name.	Character.	Tons.
Amazonense	Passenger boat	1,080
Cearense	do	889
Grangense	Cargo boat	823
Lisbonense	Passenger (quick sailer)	1,035
Maranhense	do	995
Paraense	do	1,047
Sobralense	do	1,268
Theresina	Cargo boat	737

The *Obidense* is a new steamer that is being built for the trade.

Steamers for the United States leave Para about the 23d of each month, and, returning, leave New York about the 15th. Steamers for Liverpool, Lisbon, and Havre sail directly from Manáos, on the Amazon, calling at Para about the 1st of each month, and, returning, leave Liverpool for Para and Manáos about the 5th or 6th of each month. The Red Cross line has also a line between Liverpool, Hamburg, and Antwerp and to Ceará and Para.

Booth line.—The Booth line, which is a well-equipped competitor, is also owned in England, with head-quarters at Liverpool. This company was the pioneer of the regular steam communication direct between Liverpool and north Brazil, their organization dating from 1866. The Booth line was also the first to serve Maranham and Ceará, on the north coast, with steamers from New York; and it is to its enterprise alone that the fast developing American trade to Manáos is indebted for the regular steam service it has had and still possesses with New York.

The following is a list of the steamers employed by the Booth Steam-ship Company, followed by a list of the lines it maintains:

Name.	Tons.*	Description.
Lanfranc	1,070	Passenger boat.
Anselm	998	Do.
Justin	1,124	Cargo boat, accommodating, also, a good number of passengers.
Gregory	1,001	Do.
Cyril	780	Do.
Basil	747	Do.
Ambrose	796	Do.
Augustine	818	Do.
Jerome	795	Do.
Clement	756	Do.

* Net.

The above steamers perform regular service upon the following lines under mail privileges:

First line.—From Liverpool to Para and back, once a month, calling at Lisbon and Madeira.

Second line.—From Liverpool to Para, once a month, calling at Hamburg, Havre, Lisbon Ceará, and Maranham, returning to Liverpool via Maranham and Ceará only.

Third line.—From Liverpool to Ceará via Oporto and Para, and returning direct to Liverpool from Ceará every other month.

Fourth line.—From Ceará to New York, via Maranham and Para, and back, once a month.

Fifth line.—From Manáos to New York and back, calling at Para, performing nine voyages in the year until 1891, after which monthly voyages will be made.

The respective steamers of the above-mentioned lines will sail as follows: From Manáos to New York on the 3d of January, February, March, April, May, July, September, October, and December; from Ceará to New York on the 15th of each month, calling at Maranham and Para; from New York to Manáos on the 28th of January, February, March, April, June, August, September, November, and December; from New York to Ceará on the 1st of each month, calling at Para and Maranham.

MANÁOS.

Manáos is the inland sea-port of Brazil, 1,000 miles up the Amazon valley, to which point steamers go direct from all parts of the world, carrying to that important distributing point for the enormous tributaries unbroken cargoes of the manufactures and products of other lands, returning laden with crude rubber, hides, etc.

If I may be permitted a suggestion, it would be to the interest of American merchants to develop the interior trade through direct communication with Manáos and beyond.

JOSEPH O. KERBEY,
Consul.

UNITED STATES CONSULATE,
Para, October 4, 1890.

COMMERCE AND PRODUCTS OF ECUADOR.

REPORT BY CONSUL-GENERAL SORSBY, OF GUAYAQUIL.

FOREIGN TRADE.

I have been unable to find in the archives of the consulate-general a later report giving the trade statistics than that of 1880, and even that is not full, omitting entirely, as it does, the statistics relating to Germany, without which it is impracticable to make a comparison of the imports and exports as between 1880 and 1889 as a total. It is safe to say, however, that, were such a comparison practicable, it would be found that the relative position of the United States as to the volume and value of goods sold to Ecuador would not be materially changed. To show more directly the volume of trade between Ecuador and the United States, England, France, and Germany, and for the purposes of comparison, I have selected from tables of 1889 (prepared especially for me by the honorable administrator of the customs department of Ecuador) and the report of 1880 the following figures:

Description.	1880.*	1889.	Increase or decrease.
United States:			
Imports from	$1,150,000	$1,761,981	— $611,981
Exports to	1,000,000	751,188	— 248,812
England:			
Imports from	1,788,000	2,786,377	+ 998,377
Exports to	3,144,000	1,296,449	—1,847,551
France:			
Imports from	2,015,000	2,434,675	+ 429,675
Exports to	475,000	1,965,430	+1,490,430
Germany:			
Imports from	....	1,617,246	....
Exports to	(†)	1,262,335	....

NOTE.—The values in this report are in pesos. The Ecuadorian peso dollar is equal to 85 cents, as per United States Treasury valuation of October, 1890.

* Believed to include customs duties. † Not stated.

Trade balances, inclusive of export and exclusive of import duties, for 1889.

Against, and in favor of the United States	$626,404
Against, and in favor of England	1,054,051
Against, and in favor of France	23,996
Against, and in favor of Germany	68,248
Total	1,772,699

Taken as a whole, the statistics for 1889 show that, exclusive of all import duties, the consumption of foreign goods in Ecuador amounted in that year to $9,681,455; and that, inclusive of export duties, foreign markets consumed $8,052,776 of Ecuadorian products. The import duties on foreign goods for the same time was $1,876,961. Thus it will be seen that Ecuador imported in 1889 $1,628,679 in excess of her exports.

Buying more than she sells, and without manufactories or other industrial establishments worth the mention in operation to act as a counterpoise to this unfavorable trade balance, without railroads, improved or modern methods of agriculture, it would seem that the country would speedily merge into a state of bankruptcy, both as to public and private credit. But while it is true that there is a foreign unsettled indebtedness, it can not be said that the country is, in any sense, bankrupt; and it is true that, whether the trade balance is in favor of or against the country, her merchants enjoy practically unlimited credit in the marts of the world and the percentage of mercantile failures throughout the Republic is small. In former times a considerable volume of the goods passing through the Guayaquil customhouse was transported across the Andes and over the country for the Peruvian and Colombian borders. But that is no longer the practice, and I shall not attempt to explain away or to account for the seemingly paradoxical state of affairs due to, or the condition likely to arise from, the practice of a country with the environments of Ecuador purchasing more than she sells.

FOREIGN TRADE.

Europe, by virtue of superior facilities, direct, rapid, and cheap transportation, combined with intelligent and systematic methods of offering its wares, enjoys a large share which, under conditions nearly as favorable, would be controlled by the United States.

FOREIGN POPULATION.

The foreigners most largely represented are the Colombians, Italians, and Chinese. The two latter nationalties do an extensive retail commercial business. The German comes next in ratio of population, with the Americans, English, and French about equally divided. The German represents more invested capital than any other foreign element, with the American, English, and French next in about equal amounts.

SOIL, CLIMATE, AND POPULATION.

The country consists of many varieties of soil and climate, adapted to the culture of nearly every variety of agriculture and horticulture and stock raising. The coast is populated by all nationalities, the native, of course, predominating. The interior is populated by the Indians mainly, who are the tillers of the soil, and by native Spaniards, who are the property owners.

PRODUCTS.

The coast is the commercial basis of the country, and produces the cocoa, coffee, tobacco, bananas, pine-apples, cocoa-nuts, ivory-nuts, and sugar. The lands are held, as a rule, in large tracts. The interior is the agricultural section, and, where settled, is, as a rule—except the cattle and sheep haciendas—cut up into small farms, where wheat, barley, rye, Indian corn, potatoes, sugar-cane, alfalfa, and fruits of every variety are grown. It is in the interior where the Peruvian bark and India rubber are to be found, and it is in the interior, mainly, where the cattle and sheep are raised.

At present it may be said that cocoa is the main or chief product of the country, but it can not be doubted that at an early date the cultivation of the sugar-cane and its conversion into sugar will become an industry of vast importance. The soil and climate of the coast offer unexceptionable and unrivaled facilities and inducements for its production on a large scale, the cost of which resolves itself into a question of machinery mainly.

Lands adapted to the culture of sugar-cane can be bought at from $10 to $25 per acre, and the estimated cost of clearing and planting is about $30 per acre. It is necessary to replant only once in twenty-five or thirty years. Its growth is rapid and luxuriant, and, when ripe, produces as much sugar as the best cane of Peru, the only drawback being the short time in which the cane has to mature and that of labor. The first obstacle can be overcome by large plants of the most improved machinery, in order that the cane may be cut and milled within a period of about three months. It is the custom now, owing to the lack of large and superior plants of machinery, to cut and mill the cane for about five months; and this brings to the mill a large lot of unripe cane, from which very little sugar is obtained. The latter obstacle can be overcome, in the case of large haciendas, by a system of importing labor—the coolie or West Indian thought to be preferable. It is estimated that with large haciendas, good labor, and adequate machinery the cost of production need not exceed 1¾ cents per pound.

CONDITION AND PROSPECTS.

It can not be doubted that the general condition of the country has improved; that its outlook has brightened; and that, unless some unforseen and untoward event checks the advance upon which the country has fairly started, within a very few years the Republic will be fully abreast of the most progressive of her South American sisters. The late session of Congress ratified contracts for two important lines of railroads, both of which, starting from different points on the coast, are destined to cross the Andes and link the interior, with its inexhaustible and incalculable resources, with the Pacific coast.

In the great valleys of, and the territory beyond, the Andes is a country of vast domain, unsurpassed in salubrity of climate, fertility and variety of soil, and mineral wealth. Railroads and a liberal policy toward immigration would usher in an era of prosperity not dreamed of by the Incas.

AMERICAN OPPORTUNITIES.

It is well to observe that many and golden have been the opportunities lost to firmly establish the commerce of the United States in Ecuador. Our merchants are not versed in the customs and wants of the people and country. They, no doubt, do not fully realize that a new code of rules must be framed to bring them in touch with the business men here; that a different system must be adopted than that used in the United States, where it takes only seven days to transmit a letter from New York to San Francisco, and where a shipment of goods is rapid and safe. They must realize that, if they earnestly desire to do business here, they must meet in competition the manufacturers of Germany, France, and England, with their heavy capital, easy terms, and cheap labor, combined with many years of practical experience in catering to the wants and wishes of the people. They must realize that every inch of the territory is to be stubbornly contested, and that the battle will be won by the application and enforcement of strict business principles only. The best men must be sent out to see and know personally the country and people, and their wants and customs should be specially studied. They should never for a moment entertain the thought that it is the business of the Government, with their assistance, to plant American commerce in Spanish American soil.

Among the gravest errors indulged in by American shippers is the method of packing in vogue. The receipt of American goods in a damaged and broken condition is so common as to dishearten the most enthusiastic advocate of American commerce in Spanish America, a complaint, by the way, rarely ever made against European shippers. But, despite the great disadvantages and many inconveniences under which American commerce with Spanish America labors—such as faulty packing, irregular and expensive transportation, a high rate of exchange, and a lack of sufficient and proper representation—American goods are not unknown. Nearly all of the flour used on the coast comes direct from California. Nearly all of the lumber used comes from Mississippi, Oregon, and Washington. Nearly all of the kerosene and lard, certain lines of hardware, canned goods, furniture, and the major part of the machinery of all kinds is American, and when a cooking-stove is used it is generally of American pattern and make. A great many sewing-machines and the Smith & Wesson revolvers are imported from the United States.

In this connection it is well to remark that the American patterns of sewing-machines and revolvers are imitated by German manufacturers, the result being an inferior article at a cheaper price, and, of course, an injury to the genuine brand and the trade.

American prints are preferred to those of Manchester, and some denims and duckings are in demand. American watches (silver and gold), jewelry, and silver ware, are also in demand.

MISCELLANEOUS NOTES.

Sugar estates.—These are six in number, with an aggregate capital of $1,050,000; two building, with an aggregate capital of $300,000. The first established was in 1882.

Mineral and mines.—There is but one mine being developed at present in the Republic, the Zorenna gold mine, by an English company; but washed gold from the region beyond the Andes known as the "Napo," an unexplored country inhabited solely by Indians, is brought in by them.

Population.—Of the 1,000,000 estimated it is thought that between 700,000 and 800,000 are Indians.

Area.—The area is estimated at 248,350 square miles.

Freights.—The average freights for 1889 were as follows: England—Royal Mail (steam), fine goods, $43.75 per 100 cubic feet; common or rough goods, $34.35 per 100 cubic feet; other than Royal Mail (irregular), fine goods, $36 per 100 cubic feet; common or rough goods, $25.35 per 100 cubic feet; sail, $26.50 per 100 cubic feet. Germany—steamer, $50 per 100 cubic feet; sail, $25 per 100 cubic feet. France—steamer (Havre), fine goods, $37.50 per 100 cubic feet; common or rough goods, $28.10 per 100 cubic feet; sail (Bordeaux), general cargo, $26.50 per 100 cubic feet. The United States—steamer (New York); $75 per 100 cubic feet.

Table showing the exports to the United States in 1889.

Articles.	Quantity.	Value (*valor de plaza*).	Duty.
Dutiable.	*Kilograms.*		
Cocoa	290,056	$115,467.98	$1,855.62
Coffee	380,699	158,715.98	1,674.98
Rubber	261,664	247,889.34	13,084.31
Hides	631,513	160,994.42	3,157.50
Dye-stuff	653	387.20	3.27
Grass for hammocks	1,082	308.00	108.20
Tobacco	3,162	1,088.00	63.24
Ivory-nuts	65,002	2,225.53	142.96
Sarsaparilla	322	168.00	1.60
Free of duty.			
Spice for coloring soups	231	53.00	
Medicinal bark	3,619	1,108.91	
Hammocks	394	792.00	
Lard	43	22.00	
Gold	29	11,668.00	
Live plants	30	50.00	
Silver	115	4,400.00	
Hats	2,174	25,759.00	
Total	1,640,788	731,097.36	20,091.68

Table showing the exports of Ecuador by countries in 1889.

Countries.	Quantity.	Value (*valor de plaza*).	Duty.
Dutiable.	*Kilograms.*		
Germany	13,673,878	$1,222,069.62	$40,266.26
Argentine Rupublic	2,806	1,500.00	17.96
Belgium	32,783	13,043.96	209.64
Central America	133,331	100,140.00	818.68
Colombia	640,738	351,063.40	4,064.93
Cuba	162	6,798.00	....
Chili	513,664	349,096.21	2,922.16
Spain	4,218,243	1,671,829.50	26,995.01
France	3,852,557	1,944,534.79	20,896.75
Holland	57,649	23,940.00	368.96
England	4,051,322	1,275,145.79	21,304.62
Italy	44,935	10,574.00	189.73
Mexico	67,766	33,903.00	431.72
United States	1,640,788	731,097.36	20,091.68
Peru	1,283,448	173,074.58	3,943.71
Uruguay	7,038	2,400.00	45.04
Total	30,221,108	7,910,210.21	142,566.85

Table showing the exports of Ecuador by articles in 1889.

Articles.	Quantity.	Value (*valor de plaza*).	Duty.
	Kilograms.		
Cocoa	12,169,237	$5,620,586.54	$77,882.54
Coffee	1,159,036	510,847.65	5,099.52
Borr (dye-wood)	61,526	1,465.00	406.07
India rubber	279,585	262,207.50	13,980.53
Hides	670,258	171,300.91	3,351.49
Dye-stuff	35,731	5,142.84	178.65
Straw for Panama hats	20,502	12,612.50	820.14
Straw for hammocks	30,979	7,789.00	3,097.90
Hides of sole-leather	9,651	4,474.00	145.70
Tobacco	308,426	100,328.01	6,168.52
Ivory-nuts	14,273,113	529,886.24	31,400.73
Sarsaparilla	7,010	2,416.92	35.06
Free of duty.			
Spice for coloring soups	8,946	1,376.60	....
Garlic	3,628	634.00	....
Rice	174	1,100.00	....
Cow horns	9,200	600.00	....
Sugar	303	1,740.00	....
Woolen cloth	5,144	4,450.00	....
Coal pitch	6,105	1,630.92	....
Canoe	8	10.00	....
Split bamboo	343,561	8,678.00	....
Tortoise-shell	158	400.00	....
Hull of the bean of cocoa	4,555	274.00	....
Peruvian bark	35,535	20,418.80	....
Beer	150	28.00	....
Cigars	92	75.00	....
Cocoa-nuts	300	45.00	....
Pearl shells	7,503	750.30	....
Horse hair	1,000	30.00	....
Wooden spoons	2,400	224.00	....
Borr (medicinal)	24,639	9,949.31	....
Sugar, in cakes	276	30.00	....

Table showing the exports of Ecuador by articles in 1889—Continued.

Articles.	Quantity.	Value (*valor de plaza*).	Duty.
Free of duty—Continued.	*Kilograms.*		
Chocolate	734	$152.00	....
Brush of cocoa-nut fiber	1,472	314.00	....
Fresh fruits	665,999	85,761.90	....
Ginger	1,644	210.00	....
Hammocks	1,277	1,467.00	....
Cotton fiber (vegetable wool)	407	125.00	....
Sail-cloth	46	16.00	....
Wood	2,872	328.00	....
Silk shawls	86	750.00	....
Lard	43	22.00	....
Butter	46	50.00	....
Beans	1,562	258.00	....
Samples of mineral	25	....	....
Stone jars	710	176.00	....
Gold	301	86,548.00	....
Porous tree wood	7,800	624.00	....
Cocoa wood	405	17.00	....
Potatoes	2,120	130.00	....
Paroquets, or small parrots	184	60.00	....
Grass for hammocks (wood fiber for rope)	276	30.00	....
Silver coin	5,011	201,850.94	....
Plants	4,802	3,932.00	....
Bees-wax (tallow)	16,072	1,357.00	....
Hats	27,351	244,048.02	....
Medicinal plant (tamarinds)	943	400.00	....
Various articles	58	52.31	....
Wine	35	10.00	....
Sarsaparilla	92	20.00	....
Total	30,221,108	7,910,210.21	142,566.85

Table showing the imports of Ecuador by countries in 1889.

Countries.	Quantity.	Value (*valor de plaza*).	Duty.
Dutiable.	*Kilograms.*		
Germany	3,921,631	$1,331,248.66	$285,998.17
Belgium	1,337	1,400.00	129.40
Colombia	300,621	423,679.61	17,105.20
Cuba	57,545	89,967.47	28,753.00
Chili	2,544,786	945,277.84	106,706.88
China	22,403	110,958.00	8,768.00
Spain	867,836	273,270.97	76,044.03
France	2,889,146	1,989,426.26	445,249.69
Holland	90	30.00	45.70
England	3,829,341	2,350,500.71	435,877.61
Italy	111,034	36,098.00	12,156.66
United States	4,885,133	1,377,592.73	384,389.71
Peru	4,371,692	740,331.56	75,292.29
Switzerland	1,508	11,674.00	445.45
Total	23,604,103	9,681,455.81	1,876,961.79

WILLIAM B. SORSBY,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Guayaquil, September 1, 1890.

COMMERCE AND CROPS OF ITALY.

REPORT BY VICE-CONSUL-GENERAL WOOD, OF ROME.

COMMERCE.

Imports and exports of Italy for the nine months ended September 30, 1890, compared with the same period of 1889.

IMPORTS.

Description of merchandise.	1890.	1889.	Difference.
	Lire.	*Lire.*	*Lire.*
Spirits, wine, and oils	26,272,467	22,456,200	+ 3,816,267
Groceries, spices, and tobacco	61,825,009	56,343,275	+ 5,481,734
Chemicals, drugs, resins, and perfumery	41,081,241	29,241,072	+11,840,169
Dyes, dye-stuffs, and articles for tanning	18,524,847	16,950,298	+ 1,574,549
Hemp, flax, jute, etc	20,033,493	18,257,384	+ 1,776,109
Cotton	147,305,088	141,699,393	+ 5,605,695
Wool and hair	67,500,200	68,841,028	— 1,340,828
Silk	61,273,447	76,334,103	—15,060,656
Wood and straw	30,830,809	31,281,033	— 450,224
Books and paper	8,519,118	7,567,171	+ 951,947
Skins, hides, and furs	32,627,509	28,806,607	+ 3,820,902
Minerals and metals	122,590,979	139,660,784	—17,069,805
Stone, earth, pottery, and glass	107,230,375	96,851,699	+10,378,676
Cereals, flour, and vegetable products not elsewhere included	153,285,348	176,811,462	—23,526,114
Animals and animal products not elsewhere included	71,948,356	67,653,967	+ 4,294,389
Miscellaneous	12,914,127	13,081,403	— 167,276
Total	983,762,413	991,836,879	— 8,079,466
Silver and gold	42,862,900	34,496,100	+ 8,366,800
Grand total	1,026,625,313	1,026,332,979	+ 292,334

EXPORTS.

Spirits, wine, and oils	65,434,310	106,106,225	—40,671,915
Groceries, spices, and tobacco	5,739,919	4,352,089	+ 1,387,830
Chemicals, drugs, resins, and perfumery	35,835,766	33,303,217	+ 2,532,549
Dyes, dye-stuffs, and articles for tanning	7,265,279	6,365,004	+ 900,275
Hemp, flax, jute, etc	28,871,104	27,061,089	+ 1,810,015
Cotton	21,165,796	19,645,866	+ 1,519,930
Wool and hair	6,436,590	6,258,165	+ 178,425
Silk	209,910,492	248,882,170	—38,971,678
Wood and straw	27,975,771	28,397,836	— 422,065
Books and paper	8,096,400	10,943,085	— 2,846,685
Skins, hides, and furs	15,981,531	17,635,892	— 1,654,361
Minerals and metals	17,460,326	19,728,168	— 2,267,842
Stone, earth, pottery, and glass	37,950,885	38,793,868	— 842,983
Cereals, flour, and vegetable products not elsewhere included	54,650,984	50,018,426	+ 4,632,558
Animals and animal products not elsewhere included	68,563,734	68,550,518	+ 13,216
Miscellaneous	6,964,658	5,448,977	+ 1,515,681
Total	618,303,545	691,490,595	—73,187,050
Silver and gold	52,612,000	35,804,800	+16,807,200
Grand total	670,915,545	727,295,395	—56,379,850

CROPS.*

Table showing wheat crop of Italy.

Districts.	Average area.	Average crop.	Crop of 1890.	
			Relation to average crop.	Quantity harvested.
	Hectares.	*Hectoliters.*	*Per cent.*	*Hectoliters.*
Piedmont	235,927	2,918,500	110.80	3,233,700
Lombardy	291,374	3,516,500	91.58	3,220,400
Venetia	291,202	3,517,900	95.85	3,371,900
Liguria	25,281	214,900	85.90	184,600
Emilia	456,310	5,362,600	105.67	5,666,600
Marches and Umbria	442,900	4,223,500	100.76	4,255,600
Tuscany	359,185	3,645,200	102.32	3,729,800
Latium (Rome)	137,940	1,462,500	115	1,681,900
Southern provinces of the Adriatic	697,953	6,739,100	92.33	6,222,000
Southern provinces of the Mediterranean	741,174	7,217,900	86.81	6,265,600
Sicily, island of	607,986	6,554,700	86.11	5,644,400
Sardinia, island of	151,119	1,118,800	97.10	1,154,600
Total	4,438,351	46,562,100	95.85	44,631,100

Districts.	Percentage of the crop of 1890 which has been found to be—		
	Excellent.	Good.	Middling.
	Per cent.	*Per cent.*	*Per cent.*
Piedmont		100	
Lombardy	7	93	
Venetia	19	81	
Liguria		100	
Emilia	9	91	
Marches and Umbria		72	
Tuscany	28	78	
Latium (Rome)	22	100	
Southern provinces of the Adriatic		88	
Southern provinces of the Mediterranean	12	83	17
Sicily, island of		100	
Sardinia, island of		58	42
Average	9	87	4

NOTE.—1 hectare=2.47 acres; 1 hectoliter=2,838 bushels.

* These tables are from official estimates.

Table showing barley crop of Italy.

Districts.	Average area.	Average crop.	Crop of 1890.	
			Relation to average crop.	Quantity harvested.
	Hectares.	*Hectoliters.*	*Per cent.*	*Hectoliters.*
Piedmont	2,151	22,300	86.55	19,300
Lombardy	1,424	16,700	62.28	10,400
Venetia	3,661	40,200	69.15	27,800
Liguria	1,107	9,600	45.83	4,400
Emilia	8,111	71,900	106.40	76,500
Marches and Umbria	8,065	83,700	95.34	79,800
Tuscany	7,909	76,300	99.34	75,800
Latium (Rome)	4,023	36,800	85	31,300
Southern provinces of the Adriatic	64,132	853,900	92.82	792,600
Southern provinces of the Mediterranean	56,691	678,100	82.02	556,200
Sicily, island of	128,908	1,520,800	93.16	1,416,800
Sardinia, island of	51,446	440,600	76.83	338,500
Total	337,628	3,850,900	89.05	3,429,400

Districts.	Percentage of the crop of 1890 which has been found to be—		
	Excellent.	Good.	Middling.
	Per cent.	*Per cent.*	*Per cent.*
Piedmont		47	53
Lombardy		65	35
Venetia		100	
Liguria		34	66
Emilia		100	
Marches and Umbria		100	
Tuscany		67	33
Latium (Rome)		100	
Southern provinces of the Adriatic		100	
Southern provinces of the Mediterranean	7	93	
Sicily, island of		100	
Sardinia, island of		38	62
Average	1	92	7

Table showing Indian corn crop of Italy.

Districts.	Average area.	Average crop.	Crop of 1890.	
			Relation to average crop.	Quantity harvested.
	Hectares.	*Hectoliters.*	*Per cent.*	*Hectoliters.*
Piedmont	167,778	3,036,100	91.59	2,780,900
Lombardy	314,445	6,319,000	91.81	5,801,700
Venetia	400,987	6,122,500	90.37	5,533,200
Liguria	11,985	150,600	82.74	124,600
Emilia	200,700	3,307,300	75.62	2,501,100
Marches and Umbria	197,666	2,516,000	74.26	1,868,500
Tuscany	110,314	1,822,400	70.94	1,292,800
Latium (Rome)	59,217	871,200	95	827,600
Southern provinces of the Adriatic	178,414	2,013,400	90.12	1,814,400
Southern provinces of the Mediterranean	244,552	3,442,900	72.48	2,495,400
Sicily, island of	3,427	32,200	76.40	24,600
Sardinia, island of	2,346	27,500	77.09	21,200
Total	1,891,831	29,661,100	84.58	25,086,000

Districts.	Percentage of the crop of 1890 which has been found to be—		
	Excellent.	Good.	Middling.
	Per cent.	*Per cent.*	*Per cent.*
Piedmont		49	51
Lombardy		99	1
Venetia		82	18
Liguria		100	
Emilia	16	49	35
Marches and Umbria		100	
Tuscany		87	13
Latium (Rome)		100	
Southern provinces of the Adriatic		62	38
Southern provinces of the Mediterranean		32	68
Sicily, island of			100
Sardinia, island of			100
Average	2	72	26

Table showing oat crop of Italy.

Districts.	Average area.	Average crop.	Crop of 1890.	
			Relation to average crop.	Quantity harvested.
	Hectares.	*Hectoliters.*	*Per cent.*	*Hectoliters.*
Piedmont	13,852	252,500	98.56	241,300
Lombardy	26,945	556,200	80.89	449,900
Venetia	28,503	512,600	83.20	426,500
Liguria	417	2,500	48	1,200
Emilia	15,834	260,200	99.46	258,800
Marches and Umbria	10,602	98,700	87.34	86,200
Tuscany	33,825	398,800	89.22	355,800
Latium (Rome)	22,816	336,800	89.99	303,100
Southern provinces of the Adriatic	153,292	2,137,900	76.64	1,638,500
Southern provinces of the Mediterranean	121,995	1,800,300	82.17	1,479,300
Sicily, island of	8,660	124,700	69.61	86,800
Total	436,741	6,481,200	82.20	5,327,400

Districts.	Percentage of the crop of 1890 which has been found to be—		
	Excellent.	Good.	Middling.
	Per cent.	*Per cent.*	*Per cent.*
Piedmont		76	24
Lombardy		60	40
Venetia	27	51	22
Liguria		33	67
Emilia		100	
Marches and Umbria		100	
Tuscany		81	19
Latium (Rome)		100	
Southern provinces of the Adriatic		100	
Southern provinces of the Mediterranean		100	
Sicily, island of		36	64
Average	2	89	9

Table showing hemp crop of Italy.

Districts.	Average area.	Average crop of fiber.	Crop of 1890.		Percentage of crop of 1890 which has been found to be—	
			Relation to average crop.	Quantity of fiber harvested.	Good.	Middling.
	Hectares.	*Tons.*	*Per cent.*	*Tons.*	*Per cent.*	*Per cent.*
Piedmont	6,782	4,854	64.63	3,137	43	57
Lombardy	3,178	2,058	77.45	1,594	97	3
Venetia	10,345	6,839	80.26	5,489	94	6
Liguria	295	179	87.71	157	100	....
Emilia	65,040	47,655	90.93	43,332	62	38
Marches and Umbria	5,376	2,834	83.87	2,377	74	26
Tuscany	3,241	1,800	77.89	1,402	30	70
Latium (Rome)	1,144	687	85	584	100	....
Southern provinces of the Adriatic	2,975	1,489	74.95	1,116	1	99
Southern provinces of the Mediterranean	19,092	15,882	80.79	12,831	31	69
Sicily, island of	2,715	1,023	49.46	506	92	8
Sardinia, island of	53	16	12.50	2	....	100
Total	120,236	85,116	85.01	70,527	58	42

CHARLES M. WOOD,
Vice-Consul-General.

UNITED STATES CONSULATE-GENERAL,
Rome, October 16, 1890.

THE RAMIE IN CHINA.

REPORT BY CONSUL-GENERAL LEONARD, OF SHANGHAI.

Within the consular district of Shanghai the ramie plant is not cultivated. It is principally grown in the region extending from Kioo-Kiang westward for about 50 miles on both sides of the Yang-tse-Kiang River. This plant is called "tchou-ma" by the Chinese. It is said to be closely allied to the plant known by the botanical term *Bæhmeria,* and is also called "rhea" or "rheea." "Ramie" is the Malay name for a similar plant, and in the United States it is best known by the latter term. At the treaty ports of China it is commonly called China grass.

Tchou-ma requires a very rich soil, and it is claimed that the fields where it is cultivated require to be restored about every five years. The Chinese break off the stalk 6 inches from the ground, and believe that, if it is cut or broken off too low, the root will rot. The fiber is stripped almost immediately after it is gathered, the work being relegated to women and children. The method is of the rudest description, which tends to enhance the cost of the product and lower the grade of the fiber. This would be obviated by the introduction of machinery and a better knowledge of preparing the fiber for the various markets.

The seeds of the tchou-ma plant resemble hemp-seeds in shape and are either jet black or pure white. The Chinese use the seeds extensively in making confectionery.

Two or three years ago a British merchant at Hankow got out a plant for preparing the tchou-ma fiber. He located at a town called Wu-sueh, which is situated about 30 miles west of Kioo-Kiang. The first year his experiment proved successful, but he ultimately failed from the fact that the natives got an idea that the setting up of an extensive plant worked by steam indicated that the fiber must be in great demand on the foreign markets, and they accordingly combined in putting up their prices until it became impossible to run the plant at a profit.

The Chinese make a variety of fabrics from the tchou-ma fiber, and of the poorer quality serviceable ropes and cords are made.

I inclose the following samples: *

(1) A skein of tchou-ma taken from a bale as it arrives at Shanghai. The price is about 10 cents per pound.

(2) A ball of cord.

(3) A skein of thread, bleached.

(4) A piece of rope.

(5) A piece of sack-cloth, the retail price of which is 1 cent per foot.

(6) A piece of cloth woven in Quang-Tung; retail price, 4 cents per foot.

(7) Two pieces of cloth woven in Kiang-See; retail price, 4 cents per foot.

(8) A piece of cloth woven in Kiang-See; price, 10 cents per foot.

These specimens are all made from the tchou-ma fiber.

J. A. LEONARD,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Shanghai, September 19, 1890.

OLIVE OIL ADULTERATION.

REPORT BY CONSUL BRADLEY, OF NICE.

Much of the olive oil exported from France is adulterated with different seed and nut oils. At least seven or eight of the seed products are so employed. When our fellow-citizens imagine that they are eating their salads with olive oil, it is most possible that at least a portion of the oil eaten is either cotton-seed, ground-nut (*Arachis hypogæa*), sesamum, poppy, camelina, rape, or flaxseed oil. The French farmer and the agricultural stations are doing what they can to remedy this, as growers of the olive are being seriously injured by these cheap mixtures, just as our dairy farmers were hurt by manufactured imitations of butter; but they can do little without the assistance of the buyers.

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* Samples sent to the National Museum, Washington, D. C.

It is quite possible to obtain the pure article now by co-operating with agricultural stations at shipping points, say Nice, Marseilles, and Bordeaux. Here at Nice M. R. Brullé, director of the agricultural station, writes me that, if buyers will make it a condition of their orders that samples of the oil to be shipped be placed at the disposal of the consul or director of the station by the oil merchant for analysis, he will analyze it and pronounce upon its purity, giving a certificate of the same to the merchant shipper. On receipt of the consignment, the buyer, if he wishes, can repeat the examination by a comparatively simple process recently discovered by M. Brullé.

If oil has not been sent according to sample furnished, the shipper will be liable to a criminal action. The fear of this would be a strong reason for honesty.

It is to be hoped that the importers will accept M. Brullé's offer to compel the shipment of unadulterated oil, as I am informed that some of the compounds are quite injurious to health.

WM. HARRISON BRADLEY,
Consul.

UNITED STATES CONSULATE,
Nice, October 10, 1890.

CHINESE VS. AMERICAN COTTON DRILLING.

REPORT BY CONSUL JONES, OF CHIN-KIANG.

I have the honor to forward herewith a sample of cotton drilling, thinking the subject might have some interest to American manufacturers. This cloth is manufactured at the Shanghai cotton-mills, established this year by Li Hung Chang, viceroy of Chi-Li (formerly taotai of Shanghai), and some rich compradores and merchants, all of whom are share-holders in the enterprise. The company have a monopoly for ten years for the whole of China, during which time no rival establishment can be started. There are no foreign share-holders.

At present they manufacture drillings only, and turn out about 50 pieces per day when in full blast. The cloth is woven from Bombay yarn imported from India. It is valued at about $3.50 per piece of 40 yards 30 inches wide, or say 50 cents per piece under best American drillings. The Chinese merchants here do not think it can enter into competition with American cloth, and, being of native origin, it can not claim the treaty clause to go inland under transit pass, paying only half ad valorem duty.

A. C. JONES,
Consul.

UNITED STATES CONSULATE,
Chin-Kiang, October 1, 1890.

SAVINGS-BANKS OF GLASGOW.

REPORT BY CONSUL BROWN.

PENNY BANKS, POSTAL SAVINGS-BANKS, AND THE NATIONAL SECURITY SAVINGS-BANKS.

Of all the institutions of Glasgow perhaps none have contributed more to the wealth and prosperity of the city than its savings-banks. Under the active management of William Meikle, esq., who for thirty years has been its actuary and the moving, inspiring, and controlling spirit, an uninterrupted tide of prosperity and usefulness has attended it, until now, with its attendant penny banks, in a city of less than 800,000 people, 235,000 persons are availing themselves of the opportunity to save and add to their savings by an accumulation of interest—a marvelous result, surely. The lessons of thrift, economy, and business habits thus taught must be of incalculable value to the vast number of people interested, and, if "a penny saved is worth two earned," what a power for good and blessing to the masses is here conferred. Though now more than a half-century old, the Savings-bank of Glasgow is younger by many years than other like institutions in the United Kingdom, but in the race for usefulness has outstripped them all. It is, indeed, doubtful if there is a savings institution anywhere in the world, fostered and built up under similar conditions, which can show a grander or more successful record.

The bank receives deposits as low as a shilling; at the same time it has always encouraged penny banks, furnishing blanks, stationery, etc., receiving their deposits, and aiding them in every possible manner, insisting only that the funds—the pennies of the children and the poor—shall be absolutely safe and secure and placed upon the same footing with the more pretentious savings of their neighbors who happen to be in slightly more affluent circumstances. It is, perhaps, as well to speak of the penny banks in this connection as elsewhere in this report, for they form too important a factor in the people's savings and are too closely interwoven with the wonderful system of savings in the city to be omitted. The penny savings-banks in active operation number 215. The number of transactions last year reached the unprecedented total of 934,579; this year, doubtless, the million line will be passed. The open accounts at the close of last year were 74,955, and the total amount to the credit of depositors was £19,379 4*s*. 10*d*. These penny banks are carried on by the Sabbath-schools and churches for the most part, though the system has been introduced into the day schools, but, I am sorry to say, with indifferent success, one or two schools only showing marked progress and pronounced success. The failure of the day schools to successfully work the system of penny savings is attributed to the fact that teachers were compelled to attend to the business during the luncheon hour, and hence felt it a burden, and very naturally allowed the interest to lag and die out. One striking exception is noted, the Highland Society School, and in this case the teacher is known to be enthusiastic upon the subject, and, consequently, marked and almost marvelous success has followed.

The business of the penny banks is carried on by six hundred officials, whose voluntary work and painstaking care brings its aid, with all its important lessons, to the masses, and by them "thousands upon thousands of the people, especially young people, are familiarized with the idea of saving" and are taught to form habits of economy and thrift.

The establishment of the Savings-bank of Glasgow is antedated by several others in the United Kingdom, as the following table will show. How far in the lead of the others the Glasgow institution is is also shown by the same table.

Bank and location.	When established.	Number of depositors.	Amount of funds on hand.
Liverpool Savings-bank	1815	88,566	£2,900,939
Bloomfield Street (London) Savings-bank	1816	66,458	1,342,756
St. Martin's Place (London) Savings-bank	1816	26,834	1,355,517
Manchester Savings-bank	1818	87,509	2,967,39
Glasgow Savings-bank	1836	151,434	5,189,23

The above figures are for the year ending November, 1889.

In the year 1861 the postal savings-bank system was established throughout the Kingdom; but the seventy post-office banks in Glasgow combined, after this lapse of twenty-eight years, had on hand to the credit of its patrons at the same date but £93,000. The failure of the postal savings system (if it may be called a failure), it is alleged, is owing largely to the fact that all its ledgers are kept in London, and transactions, consequently, are necessarily slow and unsatisfactory. In the country districts, where the people are deprived of the privileges of such savings institutions as I am describing, the postal savings-banks are doubtless a great benefit and blessing to the people and a marked success.

During the year just drawing to a close, it is believed, the savings-bank of this city will show almost phenomenal prosperity. On October 1, 1890, the number of depositors having open accounts with the bank had increased to 159,000, which, by the close of the year, will doubtless reach 160,000; and the enormous total of deposits at the same period will almost surely reach £6,000,000 (nearly $30,000,000), a record of which any city may well be proud and is surely worthy of emulation.

The affairs of the bank are managed by a board of trustees and managers, of which there must be no fewer than ten trustees and thirty managers. As a matter of fact, there is always a much larger number, and at the present time more than one hundred gentlemen are interested as officers, trustees, or managers in the success of the institution. A number of gentlemen, by virtue of their office, are on the board of managers, among them the lord provost (mayor), the sheriff (judge) of the city and county, member of Parliament for the city and county, etc.

This board of trustees and managers appoint from their own number a committee of management consisting of twenty-four persons. None but the active officers, such as the acting accountant, cashier, secretary, and, of course, clerks, receive pay for their services. Any or all of these officers can be suspended or removed at any time by the committee of management. Finding it impossible to abridge or summarize the rules and by-laws of the bank and at the same time convey a clear idea of the scope and completeness of the same, they are subjoined hereto and made a part of this report. The following figures and memoranda show the progress of the bank since its commencement in 1836:

Year.	Number of depositors.	Total funds.			Memoranda.
		£	s.	d.	
Tenth year, 1846	24,082	423,848	15	7	1849, bank open daily for receipts and payments.
Twentieth year, 1856....	32,287	680,940	5	6	In 1850 penny banks were instituted in and around Glasgow.
Thirtieth year, 1866......	51,887	1,114,280	12	0	
Fortieth year, 1876......	99,411	2,769,168	1	10	1871, four branches were opened in thoroughfares north, south, east, and west.
Fiftieth year, 1886........	133,663	4,504,915	14	4	1883, Govan and Partick branches opened in suburbs.
Fifty-first year, 1887.....	137,204	4,680,472	13	0	1886, jubilee year of the bank.
Fifty-second year, 1888.	143,261	4,942,382	7	0	230 penny banks in operation, having 72,000 young depositors.
Fifty-third year, 1889...	151,434	5,189,230	3	10	The bank's depositors are one in five of the population.

An item worth noticing—a stupendous fact, showing the success and value to the people of the bank—is that the interest added to depositors' accounts for the year ended November 20, 1889, amounted to £122,114, and since the establishment of the bank fifty-three years ago the sum of £2,363,823 2*s.* 7*d.* has been added as interest on deposits. These results are certainly most satisfactory; but it may be asked, in view of the remarkable showing made, is the bank financially sound? Is an institution managed by an unpaid board, who have no pecuniary interest or responsibility, rather liability, save only for any funds that may incidentally come into their hands, likely to always show a clean balance-sheet and stable foundation, and be a safe depository for the funds of work people and their families?

The answer is given in the last financial statement, which is as follows:

Statement of funds of the Savings-bank of Glasgow, year ending November 20, 1890.

Charge.	Amount.			Discharge.	Amount.		
	£	s.	d.		£	s.	d.
To balance due on November 20, 1888, as per last return	4,407,258	3	1	By sums paid to depositors	1,313,134	6	11
To sums received from depositors in year ending November 20, 1889	1,380,190	17	7	By expenses of management: £ s. d. Salaries .... 8,957 19 1 Rents paid .... 270 0 0 Printing, etc. .... 624 10 10 Coal, gas, water .... 111 1 9 Miscellaneous ... 401 10 4	10,365	2	0
To interest on money invested with the commissioners for the reduction of the national debt	122,217	10	3	By sums discharged for south branch premises	6,700	2	2
To interest from bankers	372	17	11	By balance deposited with said commissioners	4,545,976	7	2
To rents received, less taxes	668	0	2	By Bank of Scotland	34,531	10	9
	5,910,707	9	0		5,910,707	9	0

Investments under the authority of 26 and 27 Vict., c. 87, sec. 16.

Charge.	Amount.			Discharge.	Amount.		
	£	s.	d.		£	s.	d.
To balance brought forward	538,890	11	2	By sums paid to depositors	28,852	14	11
To sums invested by depositors	79,002	19	3	By expenses of management	332	12	0
To interest received from investments	20,014	2	5	By sums invested in mortgages:			
				School boards	504,057	13	5
				Municipal and parochial boards	77,104	18	4
				By cash in Bank of Scotland	27,559	14	2
	637,907	12	10		637,907	12	10

Assets.

Description.	Amount.		
	£	s.	d.
Funds deposited with Government, per certificate	4,545,976	7	2
In mortgages of school boards:			
Glasgow, Govan, Aberdeen, St. Andrews, etc.	504,057	13	5
Municipal and parochial bonds	77,104	18	4
Deposited in Bank of Scotland	63,091	4	11
Total	5,186,230	3	10

Liabilities.

Description.	No. of accounts.	Amount.		
		£	s.	d.
Balance not above £1	22,167	16,924	9	11
Above £1 and not above £10	51,011	204,090	5	7
Above £10 and not above £20	18,608	257,762	7	6
Above £20 and not above £30	11,323	269,468	16	2
Above £30 and not above £40	8,128	271,361	3	10
Above £40 and not above £50	5,221	228,760	4	11
Above £50 and not above £75	8,940	535,416	16	10
Above £75 and not above £100	6,314	555,308	19	7
Above £100 and not above £125	4,894	522,962	2	7
Above £125 and not above £150	3,021	406,733	14	5
Above £150 and not above £200	6,331	1,132,138	10	4
Penny banks	233	19,762	16	4
Charitable societies	989	23,360	19	8
Friendly societies	896	101,848	7	11
Depositors' accounts	148,075	4,545,899	15	7
Investors	3,359	572,610	1	8
Total	151,434	5,118,509	17	3

It will be seen that nearly all the funds of the bank are invested in national securities bearing interest at the rate of 2¾ per cent. The bank pays its depositors 2½ per cent. The one-fourth of 1 per cent. difference pays all expenses, and the Savings-bank of Glasgow is as sound as the Government itself.

The actuary some years ago published for gratuitous distribution an outline of the methods of business and book-keeping prevailing in the bank, from which I glean the following, the system of "checking the books" being given in full:

The arrangements of the bank are carefully adapted to the wants of the people. These are in the ample facilities given, the transaction of business with privacy and dispatch, passing five transactions per minute. It receives sums as low as a shilling, makes no charge for pass-books, and repays money when wanted. The bank has six branches situated in different parts of the city and allows any depositor passing any office to lodge his money for credit where his account is kept.

The bank is kept conspicuously before the people. This is done in various ways, prominently in placards showing the places where and the time when the bank is open, placed in numerous workshops throughout the city. Depositors' accounts are numbered in order, and this number runs through all the ledgers. The peculiar arrangements for checking and balancing rest on this method of numbering. The books used are:

(1) A ledger, in thirty-six volumes, containing five thousand accounts each.

(2) A cash-book, in three volumes—one each for the first three days of the week and again, in turn, the last three days of the week.

(3) Three teller's cash-books—one for each teller. The primary entries in these three books are made from the depositor's pass-book and before the depositor leaves the bank.

The duties of the ledger keeper, cash-book keeper, and teller are invariably performed by different persons. The routine is substantially as follows: The depositor hands his pass-book to one of the entering clerks, who enters therein the date and sum deposited. This clerk then passes the book to the accountant or an assistant, who posts the sum in the ledger and, evidencing the fact, initials the pass-book entry. At the same time he credits on the margin of the ledger account the interest from the date of deposit to the 20th of November following. The cash-book keeper next takes the pass-book and enters from the same the depositor's surname and the sum in the cash-book and passes the book to the teller, whichever of the three happens to be disengaged. The teller enters the number and amount in his book, calls up the depositor, receives the money, initials the pass-book, and hands it over to the depositor. Repayment transactions pass through the same routine, with the addition that the entering clerk takes the depositor's receipt and compares the signature with that given in the declaration book. If need be, questions are put to the depositor to identify him, and a delay of twenty-one days is interposed to make sure.

CHECKING THE BOOKS.

First operation.—At the close of business each day the tellers count their cash and balance it with their cash-book and with the principal cash-book. That book is compared, if need be, with the tellers' cash-books. Here commences the peculiar system of check. By means of it the daily postings into the ledger are not only proved to be correct, but are sectionized, so as to enable the clerks afterwards to balance the ledger accounts in separate parts or sections. The balancing of so many as fifty thousand or one hundred thousand accounts en masse has been found to be practically unattainable if attempted by the ordinary method only; therefore, the whole accounts are divided into sections of one thousand accounts each. The eighty-eighth section, for instance, contains accounts commencing with No. 88000 and ending with 88999, the initial figures of the reference number being used as the index of the section. As the accounts get thinned out several thousand may be grouped together to be treated as one section. By means of check sheets, now to be described, an account is kept of all the sums paid in and of all the sums paid out of each section or thousand. Each check sheet consists of a few long strips of ruled paper, having the index of the thousand, *i. e.*, the initial figure of the reference number, marked on the top. In the Glasgow Savings-bank there are at present ninety such sheets in use for the deposits and ninety for the payments. They are filled up in the following manner: One clerk reads off all the reference numbers from the cash-books, while another, who has the ninety sheets spread out before him, notes down on the respective sheets all the numbers read. Supposing the numbers read were 1728, 2811, 1820, 2730, 989, 2091, these numbers would be noted on the check sheets thus:

Section 0.				Section 1.				Section 2.				Section 3.			
989				728				811							
				820				730							
								91							

Each of the columns marked section 0, section 1, section 2, etc., represents a separate check sheet, containing columns for numbers and money. The numbers only are taken from the cash-book.

Second operation.—After all the reference numbers of the day's operations have been taken down on their respective check sheets, these sheets are taken to the ledger to have the sums filled in from thence. Take, for instance, sheet 2. The ledger account No. 2811 is turned up, and the deposit entry there found is copied into the check sheet and is check marked in the ledger. The interest entry is also examined and compared with the interest table, and is check marked. Account No. 2730 is next referred to; its ledger entry is copied and check marked in like manner, and so on with all the other check sheets. The deposit sheets are ruled with red columns.

The repayments are treated in the same manner on a separate set of check sheets ruled with black columns. In posting a repayment the clerk charges the unearned interest due on it in the side column of the ledger and brings down the balance. When all the check sheets have been filled up they will contain a record of all the postings into the ledger on that day.

Third operation.—The next step is to compare that record with the cash-book. For that purpose the whole check sheets are again spread out (in a portfolio with parchment loops to keep them in their places, the money columns only being now shown to have space), the cash-book numbers and sums are read, and each sum in the sheet is checked off when found to agree with the cash-book entry. In this manner the sums in the check sheets, which, it will be remembered, were obtained from the ledger, are one by one compared with the corresponding entries in the cash-book and check marked.

Fourth operation.—The accuracy of these same sums is also tested collectively at the end of every week by summing up all the check sheets and carrying the amounts to an abstract, the total of which abstract should agree with the totals of the cash-books for the same period.

BALANCING OF THE BOOKS.

The check sheets are brought to bear upon the ledgers in the following manner. From the last balance book and from the current check sheets the following is filled up:

Form for ascertaining what the balance in each section ought to be.

Proof statement.	Section 0.	Section 1.	Section 2.
	£ s. d.	£ s. d.	
Balance from 20th of November	980 7 0	750 6 9	
Add deposits since that date, per check sheets	226 9 6	476 4 0	
	1,206 16 6	1,226 10 9	
Deduct repayments since that date, per check sheets	186 7 3	300 10 0	
Balance at this date	1,020 9 3	926 0 9	

With this statement the list of depositors' balances, extracted from the ledger, is tested section by section. If each section agree, of course the whole must also agree, and we have an exact balance freer from compensating errors than if it had been effected in mass. Correctness at the first trial is almost certain, the accuracy of the ledger postings having been thoroughly tested by the check sheets before described. But suppose that an error does exist in the ledger, the above "proof statement" will point out the section in which it lies and thus limit the search to that section. In practice a critical eye, by glancing over the ledger accounts in the incorrect section, usually detects the error at once. The certainty of finding it within a circumscribed limit intensifies the scrutiny; but if this course does not detect the error, we take the check sheets of the erroneous section and separate the deposits and payments noted on them into subsections of hundreds in the same way as the whole operations of the bank were at first separated into sections of thousands. Having found the hundred on which the difference appears, it again may be sectionized until the individual erroneous account is fixed on. The error can not possibly escape. If the difference is pence only, the sectioning need only include the pence of the check sheets. This system of checking and balancing can be wrought with perfect ease and with great rapidity. By means of it the accuracy of the whole or any portion of the ledgers can be proved at any time.

It has been in operation here for a period of forty years with complete success, the quarterly and annual balances having been effected with perfect exactness, although the accounts are one hundred and sixty thousand in number. During that time experience has suggested many improvements, chiefly of a practical nature, which can not easily be described in writing. The two following particulars, however, may be shortly explained.

It will be observed that the system intrusts two operations of considerable importance to the diligence of the clerks. These are, first, the checking of the interest calculations, and, second, the checking of the additions and subtractions in the ledger.

(1) Our arrangements as to the interest are these: As already explained, in posting the ledger we credit in a side column the interest on the deposit from the current date to the end of the year. This interest is found from printed tables, which show at a glance what is due on every multiple from £1 up to £200. Next day the check clerks, by referring to the same tables, check the interest entry. A great advantage is thus gained. The clerks are saved all calculation, their work is always closely written up, and when the end of the year arrives they have only to copy the balance of interest (then due and seen in the side column of the ledger) into the principal or deposit column. By entering deposits and repayments in the same column and adding or subtracting, as the case may require, we see at a glance the balance both of principal and interest after every payment.

(2) To prevent errors in additions and subtractions the deposit check is intrusted to one clerk and the payment check to another. The latter, therefore, has always subtractions to attend to. It is a standing rule with all the clerks in going over the ledger for any purpose to examine every figure which has no check mark affixed to it. A memorandum is kept of all unaccountable entries or mistakes for future explanation. Every official uses a check mark of his own and is held responsible for its accuracy.

It is doubtful if a system more thoroughly meeting the wants of an institution of the kind could be devised. By it the business of this mammoth concern is kept with almost mathematical accuracy, certainly with the utmost satisfaction to the bank officials and the patrons of the bank.

L. W. BROWN,
Consul.

UNITED STATES CONSULATE,
Glasgow, October 23, 1890.

RULES OF THE NATIONAL SECURITY SAVINGS-BANK OF GLASGOW.

[Inclosure 1 in Consul Brown's report.]

(1) *Name and object.*—This institution shall be named the National Security Savings-bank of Glasgow, certified under the act of 1863. Its object shall be to receive small savings for safe investment and increase, to give facilities for the purchase of Government annuities or Government insurances, and, generally, to cultivate provident habits.

(2) *Rules binding on all parties.*—The bank shall be conducted and governed in conformity with the provisions of the savings-bank acts (26 and 27 Vict., chap. 87, etc.), and with the following rules, which rules shall be binding on the trustees, managers, and officers of the bank and the depositors therein and their representatives (section 4).

"Any meeting of the committee of management, convened by circular sent to each member, stating the object of the meeting, shall be competent to alter and rescind any of these rules or to make new rules. Every proposed new rule or alteration shall be publicly exhibited in the office for the space of one calendar month prior to its adoption, and shall be certified in conformity with the act."

(3) *Trustees and managers.*—The funds and concerns of the bank shall be under the control and management of not fewer than ten trustees and thirty managers. Every trustee shall, by virtue of his office, be a manager.

"No person or persons being treasurer, trustee, or manager of this bank, or having any control in the management thereof, shall derive any benefit from any deposit made therein, save only and except such salaries and allowances or other necessary expenses as shall, according to the rules and regulations, be provided for the charges of managing the bank and for remuneration to officers employed in the management thereof, exclusive of the treasurer or treasurers, trustee or trustees, manager or managers, or other persons having direction in the management, who shall not, directly or indirectly, have any salary, allowance, profit, or benefit whatsoever therefrom beyond their actual expenses for the purposes of the bank (section 6).

"No trustee or manager shall be personally liable, except, first, for moneys actually received by him on account of or for the use of the bank and not paid over and disposed of in the manner directed by the rules; second, for neglect or omission in complying with the rules required by the said act to be adopted in the maintenance of checks, the audit and examination of accounts, the holding of meetings, and keeping minutes of proceedings thereat; third, and also for neglect or omission in taking security from officers, as provided by said act (section 11).

"Any trustee or manager may resign his office on giving written notice to the committee. Intimation of such resignation shall be affixed in the office for the space of one calendar month, after which time such trustee or manager shall cease to hold office. If any trustee, manager, or officer shall become bankrupt or insolvent, he shall thereupon cease to hold office."

(4) *Meetings of trustees and managers.*—A general meeting of the trustees and managers shall be held in the month of December or January in every year to receive a report from the committee of management for the past year, to make alterations on or additions to their own body, and to elect twenty-four of their number as a committee of management. Until such election the former committee shall be considered as re-elected. Special meetings may be held at other times on the requisition of five trustees or managers. Notice of every meeting shall be sent to each trustee or manager and inserted in two or more of the Glasgow newspapers. At every meeting ten trustees or managers shall be a quorum.

(5) *Meetings of the committee.*—The committee of management shall hold meetings once at least in every month, and shall keep minutes of their proceedings in a separate book provided for that purpose (section 6). At their first meeting in each year they shall elect two of their number, one as chairman and the other as deputy-chairman, to preside at their monthly or other meetings. When the chairman and deputy-chairman are absent the meeting shall appoint a chairman. Special meetings may be called at other times by the chairman or deputy-chairman, or by the actuary on the requisition of three of the committee. Meetings of committee shall be convened by circulars. At every meeting of committee five shall be a quorum, and the chairman shall have a casting vote.

(6) *Powers and duties of the committee.*—The committee shall have power to appoint the bankers or treasurers and the officers, auditor, and clerks, and to fix their salaries (section 29). The committee shall superintend and control the establishment, give orders for the investment and withdrawal of money, examine and test the correctness of the accounts, appoint subcommittees for special and general purposes, make a report to the annual meeting of the trustees and managers, and conduct, generally, the whole affairs of the bank. The committee shall appoint two visiting managers for each month, who shall visit the bank, advise the officers, and make a report to the next meeting of committee. The committee, if they see cause, may suspend or remove the bankers, treasurers, auditor, actuary, officers, or clerks. Any vacancy in the committee occurring during the year may be filled up by the remaining members of committee until a general or special meeting of the trustees and managers shall be held; and so long as such vacancy shall not be filled up the remaining members of committee shall have all the powers and duties of the committee.

(7) The actuary shall superintend and manage the bank under the direction of the committee. He shall have power at any time to suspend any of the officers or clerks until the next meeting of the committee.

(8) *Security to be given by officers.*—Every treasurer, auditor, actuary, or cashier, and every person receiving any allowance for his services (excepting supernumerary assistants at the annual balance), shall give good and sufficient security by bond to the comptroller-general of the national debt office for the just and faithful execution of his office or trust, such security to be approved by not less than two trustees and three managers (section 8).

"Officers or clerks shall not be at liberty to engage in any separate business or to bind themselves as sureties for others without the written sanction of the chairman or deputy-chairman and another member of committee.

"If any person, by virtue of his office or employment, intrusted with money or effects belonging to the bank shall die or become bankrupt or insolvent, his executors, or the sheriff, or others having legal right shall deliver and pay over all moneys due to the bank before any other of the debts of such person are paid or satisfied (section 14)."

(9) *Mode of transacting business.*—The bank and its branches shall be open for the transaction of business at such times and places as the committee may direct. Every depositor shall receive an abstract of the rules and a pass-book, or voucher, containing an account of the money deposited, verified by the initials of the actuary, cashier, or clerk appointed for the purpose, which book must be presented every time money is lodged or drawn, also once a year for the purpose of being examined. At any branch office, as well as at the head office, not less than two persons, being either trustees, managers, or paid officers appointed for that specific purpose, shall be present on all occasions of public business and be parties to every transaction of deposit and repayment, so as to form a double check on every such transaction with depositors.

"The depositor's pass-book, or voucher, shall be compared with the ledger on every transaction of repayment and on its first production at the bank after each 20th of November. Where payment is made to a depositor at an office of the bank other than that in which his account is kept a copy shall be taken from his pass-book of the amount due to him, for the purpose of comparing it with the ledger, in compliance with proviso 3 of section 6 of the act. No money shall be received from or paid to depositors except at the office or branch offices where the business of the bank is carried on under the authority of the board of managers and during the usual hours for public business (section 6). Agents or local receivers officiating at any branch shall account to the actuary or cashier at the head office daily for all moneys received or paid by them. Every transaction shall be entered in the pass-book, or voucher, of the depositor, and the entry shall be copied therefrom, by different persons, into at least two of the books of the bank; and the duties of cash-book keeper and teller shall invariably be performed by different persons. The entries in the books of the bank shall determine the state of the account in all disputes with depositors.

"No person concerned in conducting the affairs of this bank shall disclose the name of any depositor or the state of his account."

(10) *Audit of the accounts.*—The managers or committee shall appoint annually a public accountant, or auditor, not being a member of their own body, to examine the books and vouchers, and to report in writing to them once every month the result of such audit; also to examine an extracted list of the depositors' balances, made up every year to the 20th of November, and to certify as to the correct amount of the liabilities and assets of the bank; and from time to time, not less than once a month, to compare with the ledgers such of the depositors' pass-books as may be available.

"A book containing such extracted list of every depositor's balance, omitting the name, but giving the distinctive number and separate amount of each, and showing the aggregate number and amount of the whole, checked and certified by such auditor, shall be open at any time during the hours of public business for the inspection of every depositor as respects his own account, to examine his own deposit book therewith and the general results of the same (section 6)."

(11) *Property and funds of the bank.*—All money, effects, and property belonging to the bank and all rights and claims competent to it shall be vested in its trustees for the time being

for the use and benefit of the bank and the several depositors therein (section 10). All moneys received from depositors (excepting a sum not exceeding £200 retained in the cashier's hands) shall, after the office closes for the day, be deposited with the bankers or treasurers of the institution; and it shall be the care of the committee to see that so much thereof as is not required to meet the demands of depositors is forthwith invested agreeably to the provisions of the act (section 15) and the rules of the bank. The trustees are entitled to draw upon the national debt commissioners for the full amount deposited with them whenever the same shall be required (sections 21, 25, 26, and 28).

(12) *Declaration.*—Persons making deposits, whether for themselves or on behalf of or in trust for others, shall disclose the name, occupation, and residence of the owner (section 36), and shall sign the declaration required by the act; a copy of which declaration, with the penalty attached thereto if false, shall be annexed to the deposit book. Any depositor may hold a deposit as executor, administrator, or other personal representative of any deceased depositor, in addition to his own deposit (section 38).

(13) *Extent of deposits by individuals.*—Deposits may be received from any individual to the extent of £30 in one year, ending November 20, and to the extent of £150 in all (or such other sums as may be authorized by Parliament), which deposits may accumulate till they amount to £200, when interest shall cease. Any depositor having closed his account, may re-open it with the same privileges as if he were a new depositor.

"To secure the depositors whose balances amount to £200 from loss of interest, authority is hereby given to the committee to transfer from the accounts of such depositors such sums as shall reduce the same below £200, all which sums shall be carried for the benefit, and subject to the claim, of the said depositors, to a separate account not bearing interest. And whereas provision is made by the said act (section 16) for the receipt of money for any purpose, except to be paid into the Bank of England to the account of the commissioners, and authority given to apply the same in any other manner for the benefit of the several depositors, in terms of that provision, therefore, but subject to the judgment and discretion of the managers, depositors may open separate accounts, in which money may be received for investment in the public or Government securities of Great Britain and Ireland, or in exchequer bonds or bills, or other securities created or guarantied by authority of Parliament; or in bonds or mortgages over heritable property; or in debentures, mortgages, or deposit receipts of any company incorporated by royal charter or under act of Parliament; or upon the security of any county, borough, or other rates authorized to be levied or mortgaged by act of Parliament—all which sums shall be invested for the benefit and at the sole risk of the depositors for whom such investments shall be made."

(14) *Societies.*—Charitable or provident institutions or societies and penny savings-banks, whose objects and rules are approved by the national debt commissioners, may deposit their funds to any amount. Without such approval, they may deposit to the extent of £100 per annum and £300 in all, exclusive of interest (section 32).

Friendly societies legally enrolled or certified may deposit their funds to any amount (section 33).

"All societies and penny banks depositing shall be subject to the rules of the bank, and their deposits shall be received under the condition that the bank will not be responsible for the misapplication of any money repaid on their account, nor for any want of authority in the person presenting their deposit book or voucher and receiving payment."

(15) The interest allowed to depositors shall, until a change is publicly advertised, be at the rate of £3 per cent., to be calculated by months, on every sum of £1 or such smaller sum as the committee may fix. No fractional part of a penny will be paid.

"In order that the books may be cleared of dormant accounts containing small unclaimed balances, the committee shall have power to transfer such balances from time to time to the surplus fund, subject to the claim of the depositors."

(16) *Repayment of money.*—Deposits will usually be repaid on demand; but no depositor shall, as matter of right, be entitled to payment without giving twenty-one days' previous notice at the office where payment is required to be made—the managers and officers having a discretionary power to withhold payment for that period. Payments to persons under twenty-one years and to married women shall be valid and beyond challenge as regards the bank (sections 30 and 31). The deposits of infants under ten years of age may, with consent of the managers or of the actuary, be withdrawn or transferred by the parent. The managers and officers endeavor to identify every depositor requiring payment; but, should any person present a depositor's pass-book, or voucher, and unlawfully obtain from the bank any deposit or sum of money credited therein, or any transfer, neither the bank nor the managers or officers will be responsible for the loss that may thereby be sustained, nor be liable to make good the same, unless the depositor shall have previously given notice in writing of the loss of the pass-book, or voucher.

"Should the bank, in order to accommodate depositors and others, transmit money, orders, or vouchers, by post or otherwise, the transmission shall be made at the sole risk and expense of the parties thus accommodated."

(17) Deposits made by a trustee on behalf of another subsequently to August 9, 1844, shall not be repaid without the authority of the trustee and of the person interested, or of the survivor of them; but, where such person is insane or imbecile, payment may be made to the trustee (section 37). Where the trustee is acting under a trust deed, payment may be made to the trustee alone.

(18) If any depositor shall become insane, imbecile, or be otherwise incapacitated to act, and the same shall be proved to the satisfaction of the managers or officers, they may authorize payment out of the funds of such depositor of such sums as they shall think proper or necessary for the care, maintenance, medical attendance, or burial of such depositor or member of his family; and the receipt of the party to whom any such payment is made shall be a good and valid discharge to the bank.

(19) The money of deceased depositors shall be paid to the executors on the production of confirmation (sections 41 and 45). Where the sum due, exclusive of interest, does not exceed £50, and no confirmation or notice of confirmation is produced, the committee shall have power to pay the same without confirmation upon the expiry of a month from the death. All moneys paid without confirmation shall be paid and divided amongst the persons entitled to the same according to the law of Scotland, unless the committee shall, at one of their monthly meetings, think fit, under the peculiar circumstances of each case, specially to direct otherwise, either in favor of the widower or widow of the deceased, or of some one or more of the parties entitled, or others not entitled by law to succeed, in such proportions in either case as the committee may think fit, or for the benefit of a creditor or creditors; and it is hereby declared that the committee shall have and exercise such power at their discretion (sections 43, 44, and 47).

"*Cases of illegitimacy.*—Money due to depositors who are illegitimate, and who shall die intestate and without leaving a widow or lawful issue, may, with the authority of the barrister, be paid to any one or more of the persons who would have been entitled to the same if the depositor had been legitimate. If there be no such person, payment may, with the like authority, be made to such persons as the commissioners of Her Majesty's treasury may approve (section 46)."

(20) *Exemption from stamps.*—Every receipt, bond, instrument, or document required in transacting the business of the bank shall be exempt from stamp duty (section 50).

(21) Deposits may be transferred from one savings-bank to another by certificate from the trustees and managers without uplifting money (section 40, and 26 Vict., chap. 14, sec. 5).

(22) *Refusal or return of deposits.*—The managers may refuse to receive deposits, grant transfers, or contract for annuities or insurances when deemed expedient, and may return deposits to any depositor on giving one month's notice by advertisement or otherwise, the interest on such deposits to cease at a period to be specified in such notice.

(23) If any dispute shall arise between the trustees and managers and any person entitled to or claiming any deposit or sum of money, the matter in dispute shall be referred in writing to the barrister at law appointed to certify the rules of savings-banks, whose award shall be binding and conclusive on all parties (section 48).

(24) In the event of any depositor losing his pass-book, or voucher, he should give written notice of his loss at the office where his account is kept, and in one month from that notice, and after furnishing evidence of his identity and granting such guaranty or indemnity as the managers may require, he shall receive a new pass-book, or voucher, exhibiting either the balance only or a full duplicate of his account as appearing in the books of the bank (which shall in all cases be deemed due evidence of the state of the accounts), and for which he shall pay, if required, 1*s*.

(25) *Periodical statements.*—Statements showing the liabilities and assets of the bank and returns respecting the details of its business, shall be prepared and transmitted to the national debt commissioners whenever demanded by them (sections 7, 55, and 57). A duplicate of the last annual statement, accompanied by a list of the trustees, managers, and officers for the time being, shall be always publicly exhibited in the office, and every depositor shall be entitled to a copy thereof (section 59).

(26) Government annuities and insurances may be purchased through this bank, under the provisions of the acts of Parliament and the regulations of the national debt commissioners. Every annuitant or insurer shall be considered a depositor, and shall be subject to the rules of the bank. A summary of the provisions of the acts will be furnished on application.

PENNY SAVINGS-BANKS.

[Inclosure 2 in Consul Brown's report.]

The object of penny banks is to promote provident habits among the working classes and their children by affording them facilities for the deposit of the smallest sums, repayable when required. The saving of pence proves a training to habits whereby, ultimately, larger sums are saved and the virtues of industry and providence are cultivated and confirmed.

CONSTITUTION OF PENNY BANKS.

The banks are usually instituted in connection with churches, mission stations, or schools. The management of each bank is vested in a body of eight or ten gentlemen of influence in the locality. By signing a form of constitution, which is obtained at the savings-bank, these gentlemen constitute themselves trustees for the due superintendence of the penny bank; they appoint the officials, and they further engage that no depositor shall be a loser by the bank.

In the discharge of their duties the trustees should from time to time visit the bank, examine the books, and consult with the officials as to the best means of promoting its usefulness.

The savings-bank is ready to give information and assistance in the formation of penny banks, but it undertakes no responsibility to their depositors.

The officials required are a cashier and a book-keeper, assisted, if necessary, by younger persons. The cashier or book-keeper should be always at his post to place each official, preserve order, answer inquiries, etc. The trustees should secure officials who will devote their best energies to the work and make the bank a success. Before commencing they should visit several existing banks and see the system in operation. Penny banks owe much of their success to a cordial confidence in the officials. Such confidence can only be maintained by punctuality in attendance and by a close attention to all the details. At no moment must there be less than two persons engaged in working the bank, as enacted by 26 and 27 Vic., chap. 87, sec. 6.

The books required are a ledger, a cash-book, and a supply of four or five hundred pass-books. Sets of these, suitably ruled and printed, may be had by applying at the savings-bank.

The place of business should be of easy access, in a central position, large, well lighted and ventilated. It should have a gas-lamp outside and a sign-board showing the hours open. The best bank nights are Saturday and Monday.

The officials should keep the bank prominently before the public; they should cordially invite depositors, and frequently explain to them the duty and the advantages of saving. It has been found a capital plan to issue to the children a little colored picture card, or better still if the card is delivered at the homes of the people by the missionary or district visitor.

METHOD OF BUSINESS.

Penny banks receive small sums from a penny upwards. Trustees see that the amount is lodged weekly in the savings-bank in a general account, repayable to the cashier and one of the trustees. When any depositor has accumulated £1, that sum is transferred from the penny bank to an account in his own name in the savings-bank, whose pass-book is furnished to him. This practice lightens the responsibility of the trustees and gives the depositor the benefit of interest—penny banks do not allow interest.

Every depositor, on opening an account, gets a ledger space assigned to him, also a pass-book showing his number, his initials, and his deposit. This pass-book must be presented every time business is transacted.

The cashier receives and pays all moneys, and enters the date and the amount in the pass-book, and initials the entry; he also enters the number, the initials of the depositor, and the amount in the cash-book. He then hands the pass-book to the book-keeper, who opens an account for the depositor in the ledger and enters therein the date and the amount, copying from the pass-book direct. At the close of business the officials count the cash, add up the cash-book, and ascertain that these exactly correspond. The cash should then be forwarded to the savings-bank, and both officials should sign a record of the result. Immediately after the close of business, or, at all events, before next bank night, they compare the entries in the cash-book with those in the ledger, check marking every transaction. Should any discrepancy appear either in the cash or in the books, a note of it should be taken on a page in the cash-book for after-explanation. Any entry and any addition or subtraction found without a check mark should be instantly investigated. After the bank has been a few weeks in operation the books should be submitted for inspection to the local trustees and to the savings-bank.

A cash-book summary should be written up weekly, showing the number of transactions, the amount lodged and withdrawn, the amount transferred, and balance remaining due.

The following is the form of the cash-book:

Saturday, 2d of April, 1887.

(Foolscap size.)

Number and initials.	Deposits.	Number and initials.	Deposits.	Number and initials.	Drafts.
	£ s. d.		£ s. d.		£ s. d.
80. R. W	0 1 3	Forward	1 18 6	372. R. S	0 12 0
81. A. R	0 0 3	100. T. J	0 6 0	84. J. O.	0 10 0
109. R. O	0 0 8	90. S. N	0 1 0	161. B. S	0 1 4
37. S. S	0 0 9	Etc.	Etc.		1 3 4
345. J. Y	0 0 6			Transfers.	
246. T. S	0 1 0			87. R. M	1 0 0
100. M. R	0 10 0			181. T. B	1 0 0
123. A. B	0 8 0		4 11 10		3 3 4
17. T. O	0 9 1				
187. R. M	0 7 0				
Forward	1 18 6				

WEEKLY ACCOUNT OF CASH.

	£ s. d.		£ s. d.
On hand	0 10 0	Payments	1 3 4
Deposits	4 11 10	Transfers	2 0 0
Drawn from savings-bank	0 0 0	Lodged in savings-b'k.	1 0 0
		On hand	0 18 6
	5 1 10		5 1 10

CHARLES GIBSON, *Cashier*.
ROBERT CRAIG, *Book-keeper*.

The following is a specimen of the ledger:

(Size, 12 by 8 inches.)

80. Robert Wilson, 174 Stobcross street.			81. Ann Robb, 47 Lancefield street.			82. James Hall, 74 Finnieston street.		
1887.		£ s. d.	1887.		£ s. d.	1887.		£ s. d.
April 2.		0 1 3	April 2.		0 0 3	May 14.		0 2 1
April 23.		0 5 0	April 14.		0 0 3	May 21.		0 4 5
April 30.		0 10 0	Nov. 20.	Bal.	0 0 6	June 4.		0 1 2
May 7.		0 4 0						0 7 8
		1 0 3	1888.			Aug. 27.	Paid.	0 3 7
Do.	Tr.	1 0 0	Jan. 7.	Paid.	0 0 6			0 4 1
		0 0 3				Oct. 7.		0 0 3
Dec. 1.	Book	lost.				Oct. 14.		0 1 9

Reference numbers.—When the account of any depositor overruns the space originally allotted to it in the ledger, it should be transferred to the nearest empty space, and the number on the pass-book should be changed to that of the new space.

When the original ledger requires to be renewed, the accounts remaining open should be transferred into a new volume without changing the reference numbers. These, although not continuous, will still be quite convenient for reference.

Small unclaimed balances should be carried to one account in the ledger, titled "suspense," there to remain until claimed.

DIRECTIONS FOR ANNUAL BALANCE ON NOVEMBER 20.

Sum all the accounts in the ledger and bring down the amount due on each. After checking this operation copy off all the balances into an extracted list, cast up the amount, and prove its correctness by a statement made up from the cash-book. This list, together with the proof statement, should be taken down on the current page of the cash-book, in order that it may always be conveniently at hand for reference. Avoid all loose sheets and subsidiary books, and let the cash-book and ledger contain every thing.

List of balances, copied from the ledger, November 20, 1887.

Refer. No.	Balances.	Refer. No.	Balances.				
	£ s. d.		£ s. d.		£ s. d.		£ s. d.
1	0 18 1					No.	Abstract.
2	0 3 0					40	10 1 1
4	0 2 1					40	8 2 4
7	0 15 0					21	3 19 7
							Etc.
	10 1 1		8 2 4		3 19 7	994	150 16 8

FORM FOR PROVING THE CORRECTNESS OF THE BALANCE.

	£ s. d.	£ s. d.
Balance due depositors November 20, 1886		58 9 1
Received from depositors this year		214 19 6
		273 8 7
Repaid to depositors this year	95 11 11	
Transfers to 16 depositors this year	27 0 0	
		122 11 11
Balance due depositors November 20, 1887		150 16 8

To meet this balance there is deposited in the savings-bank £150; in the cashier's hands, 16*s.* 8*d.*

If there be any discrepancy between the amount shown by the list extracted from the ledger and that shown by the above statement made up from the cash-book, a diligent search should be made for the cause of difference. So long as it remains undiscovered the books are not balanced. To ascertain the number of open accounts count the balances.

INSPECTION AND AUDIT BY THE TRUSTEES.

Trustees or persons skilled in accounts should periodically audit the books and certify the assets and liabilities. This provision is absolutely necessary, and ought to form a fundamental rule of every penny bank. The money of people in the humble ranks of life ought to be guarded with more than ordinary care.

Annual certificate.—"We have compared the list of balances, also depositor's books, with the ledger; have verified the above proof statement with the cash-book; have proved the summations, and find all correct."

GLASGOW, *December 1, 1887.*

A.——B.,——residing at——, Trustee.
C.——D.,——residing at——, Auditor.

E.——F., Cashier.

"The depositor's pass-book shall be compared with the ledger on every transaction of repayment, and on its first production at the bank after each 20th of November."—26 and 27 Vict., c. 87, s. 6.

The officials should from time to time submit the books to the trustees and invite them to visit the bank. Their presence and friendly counsels have a most beneficial influence in encouraging the depositors and promoting the usefulness of the bank.

Any depositor losing his book should give immediate notice at the bank. The book-keeper should stop payment (by means of a pencil note on the account) and enjoin a dilligent search for the book. After the expiry of a month, and on receiving guaranty against after-claims, he should grant a "duplicate" book, charging *2d.* for it.

WILLIAM MEIKLE,
Actuary, Savings-bank of Glasgow.

TRADE AND INDUSTRIES OF UPPER ALSACE.

REPORT BY CONSUL JOHNSON, OF KEHL.

COTTON SPINNING.

The condition of the trade of cotton spinning for the latter part of the year 1889 was satisfactory. The production was on the increase, with remunerative prices. There was a specially great demand made for the coarser numbers, which are better protected by the German duty and yield better profits.

The manufacturers in general have turned their attention to the coarser numbers, by which reason the production has increased in weight. It is to be observed that the freight rates on exported cotton by the way of Bremen have somewhat decreased. Unfortunately, the increase on coal transport has, in a certain sense, counterbalanced this profit. The raw material has also advanced in price without the price of yarn being able to follow in like manner.

The general peace policy exercises a beneficial influence on the trade. It is unfortunate that the speculations of syndicates produce confusion in the market.

In the beginning of 1890 the condition of trade continued satisfactory. The fabrics found a market, but complaint was made about the insufficient protection for the fine numbers. Though the orders increased and the prices advanced, there is still a dark side to look at, viz, the advance in coal, the increase of laborers' wages, and the decrease in the workmen's time. There are great hopes entertained that the facilitation of freight by the construction of the canal between Strasburg and Ludwigshafen will help to re-establish the balance between the rise of the raw material and the rise of prices on manufactured articles. Laborers earn from 47 to 95 cents per day; young persons, 31 to 42 cents per day; women, 32 to 51 cents per day.

COTTON WEAVING.

During the latter half of the year 1889 there was a marked improvement in the condition of this industry. Owing to the increased demand, the production rapidly increased. The prices in general were also good. The increase in the general expenses and the rise in coal prices, on the other hand, have exercised their checking influence. Manufactures of coarser textures are always on the increase, but the finer are on the decline more and more.

In the year 1890 the situation can be regarded as still more satisfactory. Still, the high prices of the textures were counterbalanced by the high yarn and coal prices, the advancement of workmen's wages, and the reduction of the workmen's time. Last quarter there was a noticeable decrease in the production. With regard to the customs duties, there is always existing a difference of opinion between the customs authorities and manufacturers about classifying thick and thin. The difference between these two grades is not closely enough described. The laboring time for the spinners, as well as the weavers, has been reduced to eleven hours. The laborer earns, on an average, 52 cents per day.

WOOLEN WEAVING.

The trade done in the year 1889 in woolen weaving from worsted yarn was good. The production increased, and the sales were large; the raw material rose and yarn followed. The prices of these goods advanced to such a degree that purchasers refused to buy them, and a certain depression ensued. Toward the close of the year there was a decrease in the production.

At the beginning of 1890 the outlook was gloomy; the price of the raw material was higher, and the sales to the wholesale merchants small. The influenza had much to do with this. The fine woolen yarns on the markets have been mostly supplanted by the English. An improvement has not taken place up to the present time; nothing has been sold, and the weaving looms are standing still. Dear coal, increase of wages, reduction of the work time, etc., are factors which are exercising a depressing effect on the industry.

THREAD.

The year 1889 was said to be good. The goods were bought when the prices were not too high. The normal condition of the year 1889 has continued to prevail. The production has been able to keep up to last year's footing, but since the last strike thère has been a slight decrease. The price of the texture ought to be advanced, and a reduction in freight rates would be of benefit to this industry. Complaint is made of the insufficient customs duty; it would also be desirable that a cheaper classification be made in the numbers 30-2 to 60-2 English.

England deluges every place with her products, and does much harm to the German industry. The reduced export rates are very favorable for the German sea-ports. Laborers earn from 47 to 76 cents per day; women, 41 to 53 cents per day.

STOCKING KNITTING.

The year 1889 is denoted as being a good one. The production was on the increase, and the prices were very remunerative. The workmen earn 57 cents per day.

MANUFACTURE OF SILK RIBBONS.

Since the autumn of 1889 this branch of industry has been dull, and there are no indications at present of an improvement. The prices considerably declined, as there were only small orders. The fashion has affected this texture in a damaging degree. With the exception of some orders for the United States, the beginning of the year has grown much worse. At the present time many weaving looms are idle. In spite of this critical situation, wages remain the same.

SILK SPINNING (CHAPPE).

These goods find a small market in Germany. France is the actual purchasing country, but her high duties make it very difficult to export to that country. The production has increased over that of last year. The laborers earn from 38 cents to $1.05 per day. The trade in this texture has been influenced by fashion to a large extent. The silk yarn is used for the weaving of silk and mixed textures (silk and cotton).

SILK SPINNING AND TWISTING FOR SEWING-THREAD.

This industry is in a critical condition. The prices of raw material are too high. The production depends upon fashion, and this has not been favorable for three years. France has raised the duty on this article; and there is competition in Germany, as this article is imported free of duty. Laborers' wages are from 57 to 95 cents per day; women, 33 to 47 cents per day.

COTTON AND MIXED WEAVINGS.

In the summer of 1889 the manufacture of these articles at Markirch was not profitable. There was less goods made than formerly, especially in mixed goods. A reduction of prices has made itself felt. There have been fewer orders for the weavers' sheds, and, in consequence of the increase in the weavers' looms, foreign weavers have come to this town. The prices are maintained at their highest, supported by those of the raw material. For twelve hours' work the men received from 50 to 71 cents per day; the women, 28 to 30 cents. Toward the end of the year 1889 the condition of the industry improved. During the summer of 1890 many orders were received, and all of the looms were in full operation. The fashion returned to the "carreaux," and the mixed woolen weavings to "l'article vigoreux." The cool temperature somewhat hindered the sales, and, in consequence, complaints were made by the retail dealers, who were backward with the orders for spring Wages of weavers are from 28 to 38 cents per day; spinners, 57 to 76 cents

The rise in the price of raw material has also made it necessary to advance the price of the texture. In March, 1890, there was a stand-still, on account of the small winter sales, owing to the mild temperature and the influenza. The spring orders were failing, and it was necessary to stop many looms. Wages went down, and the production decreased. At present the position is unchanged. All looms should be busy for the winter season of 1890–'91, but this will not be the case. Fears are expressed for the autumn and winter strikes. The fashion has remained up to the present "carreaux," but this may change. If the fashion continues for "l'article fantasie" (fancy woolen goods), then Markirch will profit; but if it goes to the article "uni,' then the tables will be turned. A change in the fashion is so far introduced that the wish is expressed that the texture be made from hard wool, which is mostly brought from England. The increase of wages in consequence of the strike, the prices of raw material, and the frequent sample shipments without the desired result considerably injured the Markirch industry. The foreign workmen earn from 38 to 47 cents; at Markirch, in the factory, 71 cents; women, 38 to 47 cents.

The grand duchy of Baden has begun to compete, in the province of Alsace-Lorraine, with the handkerchiefs manufactured at Markirch, which are sold chiefly in this province. On the foreign market it is brought in contact with the Swiss products. In both of these countries it is said that the hand-labor is far cheaper than in Alsace-Lorraine. The workmen in this industry are employed little or almost not at all during the summer, but in the winter they are kept busy.

MIXED COLORED TEXTURES.

The common weaving has not been very satisfactory. The overproduction impedes sales and lowers prices. At present the fashion is very changeable; there is no running article, and the sample shipments have so extensively increased that the general expenses are very heavy. The trade with the United States suffers by the high customs duties, and with France by the passport regulations. The laborers work by the piece, and are only employed from time to time; it is therefore difficult to give their average daily earnings.

LINEN MANUFACTURE.

The trade has been normal. Production and consumption have decreased. The reason for this decrease is the exceedingly favorable trade of last year. This industry has to compete with a strong market in Germany, which has helped to advance the prices.

MACHINERY.

The trade in this industry has been satisfactory. The workshops are provided with work, but the sales are light. The prices since last year have advanced, the general rise in prices having made itself felt in this branch of industry. Complaints are made against the unfavorable protective duty. The import duty on the raw material and half-manufactured articles costs more than the whole machine when it is finished. On this account, many orders are given to English firms.

FOUNDRIES.

The general condition of this industry, which showed an improvement last year, has become worse; and it is not possible to say when this falling off will come to an end. The position of the workmen has grown better since the last strike. They work now only eleven hours, and earn only 85 cents. The high freight charges on raw material exercise a depressing effect on the foundries.

SEWING-THREAD.

For the year 1889 the situation can not be denoted as favorable. In the month of March there was an improvement in the trade, since which time it has been in a normal condition. It can not be said that up to the present time there has been an improvement.

TOBACCO MANUFACTURE.

The close of the year 1889 can be designated as satisfactory. The production has been on the increase, and the year 1890, up to the present date, has also proved to be good. The sales are gradually increasing. The wages per day are: Men, 47 to 85 cents; women, 28 to 47 cents; children, 21 to 28 cents.

SOAP MANUFACTURE.

The condition of this industry can be said to be normal. It suffers much from foreign competition, which compels the manufacturers to send many samples and to use different modes of packing. This considerably advances the general expenses.

STEAM SAW-MILLS.

The year 1889 can be mentioned as a good one. The sawing of wood has increased, and the prices have advanced. There is a good deal of sawed wood sent to Germany. It is a pity there are not so many buildings being built in the province of Alsace-Lorraine as in the rest of Germany. On account of thick wood being scarce, many orders had to be refused. There are always complaints made about the estimates of wood without public sale. The average wages are from 42 to 57 cents per day.

BRICK AND CLAY TUBES.

During the last six months of the year 1889 sales were difficult to make, and the production decreased. In the year 1890 the condition changed for the better. This industry has a strong competition to bear, and it is depressed by the high prices of coal. Laborers' wages are from 42 to 57 cents per day. The manufacture of clay tubes at Ollweiler has lost its importance, as they are now mostly superseded by iron ones.

TANNERIES.

This industry has been in a bad condition on account of the overproduction. Leather is only sold when the cost of production and the interest on the capital are covered; for this reason the prices declined. The average wages are 62 cents per day.

SMELTING.

The twenty iron-founderies of Upper Alsace produced, in the year 1888, wares, tubes, and other castings of all sorts amounting to 12,471,808 tons, for which there were melted 13,453,728 tons of raw and scrap iron. The production has increased over that of the former year by 535,918 tons, as in that year only 11,935,890 tons of finished wares were produced. During the year there were also made from 310,000 tons of unwrought iron and other iron material 251,247 tons of welded iron (parts of machinery, wrought iron, etc.), valued at 42,515.98 marks, against 235,968 tons, valued at 42,474.24 marks, in the preceding year.

STEAM-BOILER WORKS.

In the year 1888 there were in Upper Alsace 73 new boilers in operation, and 53 of the same were sold, giving an increase of 20 boilers. The total number of boilers at the close of last year was 1,349; at present there are 1,369, while in the whole of Alsace there are 2,121. The number of locomotives in Upper Alsace is 29, the same as last year.

FACTORY OPERATIVES.

On the 1st of October, 1888, there were employed in the 597 factories of Alsace 9,345 persons under sixteen years of age and 70,995 older workingmen, making a total of 80,340 persons in employment. In Upper Alsace, in the 362 factories, there were employed 62,124 persons, with 7,434 youths. In Lower Alsace, in the 235 factories, there were employed 18,216 persons, with 1,911 youths.

The following figures show the number of factories in operation since the year 1882:

1882	396
1884	575
1886	621
1888	597

The workmen of Alsace, according to a report dated the 1st of October, 1888, have increased by 3,348 persons since June, 1886, when the statistics only showed 76,992 workmen, of whom 8,890 were youths. In the year 1888 the number of youths was 9,345, thus showing an increase of 455. The percentage of youthful labor in proportion to all work in the year 1886 was as follows:

	Per cent.
Upper Alsace	12.03
Lower Alsace	9.90
Alsace in general	11.54

For the year 1888 the percentage was as follows:

	Per cent.
Upper Alsace	11.97
Lower Alsace	10.49
Alsace in general	11.63

In Upper Alsace there was consequently a decrease of 0.06 per cent.; on the other hand, in Lower Alsace there was an increase of 0.59 per cent.; in the province of Alsace collectively, an increase of 0.09 per cent. A material change takes place in these figures if one takes for comparison those who manufacture to account and those who generally employ youthful workmen. In 425 factories; employing 76,949 operatives, 9,345 youthful workers are employed; and in 172 factories, employing 3,391 persons, old workmen only are employed.

The percentage of the youthful workers is as follows: In Upper Alsace, 12.35 per cent.; in Lower Alsace, 11.41 per cent.; in the province of Alsace in general, 12.15 per cent.

The number of youthful laborers, according to their sex, on the 1st of October, 1888, was as follows:

District.	Male.	Female.
Upper Alsace	3,251	4,183
Lower Alsace	1,069	842
Total	4,320	5,025

The number of youthful persons employed, according to age and sex, was as follows:

Age.	Male.	Female.	Total.
12 to 14 years of age	598	1,151	1,749
14 to 16 years of age	3,722	3,874	7,596
Total	4,320	5,025	9,345

It is thus shown that 18.7 per cent. of the youthful workers are from twelve to fourteen years of age and 81.3 per cent. from fourteen to sixteen. The greater number of workers under sixteen years of age are employed, as hitherto, in the textile industry, namely, 7,875, or 13.20 per cent. Upper Alsace has 6,715, or 13.11 per cent.; and Lower Alsace, 1,160, or 13.79 per cent.

With reference to the division of the different sexes employed in the textile industry, there are 4,320 boys and 5,025 girls. Of those employed in the factories of Upper Alsace, the percentage of boys of the 34,384 male persons is 9.45 per cent., the percentage of girls of 27,740 female laborers is 15.08 per cent. In Lower Alsace the percentage was: Boys, 8.11 per cent. of 13,178 male persons; and girls, 16.71 per cent. of 5,038 female laborers.

TAXES.

The revenue taxes paid for the fiscal year 1889–'90 amounted to 830,942.55 marks.

In the year 1889 there were in this district (Colmar) 3,653 tobacco planters and 8,060 pieces of land, embracing 120,884 acres, planted with tobacco. The amount of the tobacco revenue for 1889–'90 (for raising) was as follows:

	Marks.
1889	130,819.55
1888	2,358.60
Total	133,678.15

During the business year from October 1, 1888, to the end of September, 1889, there were 7,231 distilleries in this district, of which 5,492 were in operation. These distilled 101,880 hectoliters* from husks of pressed grapes, 744 hectoliters from kernel fruit, 34 hectoliters from brewers' waste, 22 hectoliters from pressed wine dregs, 3 hectoliters from clusters of grapes, 7,380 hectoliters from liquid wine dregs, 243 hectoliters from other materials.

The tax for inland salt amounted, in 1888–'89, to 229,201 marks. For stamping of valuable papers and of lottery tickets, as well as imperial stamped paper, the tax amounted to 15,231.85 marks. Of the playing-card stamp tax there was no collection. The twenty breweries running at present manufactured 24,663 hectoliters of beer. The tax for these breweries amounted last year to 56,663.66 marks. The wine tax amounted last year to 155,524.23 marks; that from fruit wine was 44.99 marks. The wine imports were as follows:

From—	Quantity.	From—	Quantity.
	Hectoliters.		*Hectoliters.*
Baden	1,675.30	Other allied states	1,929.95
Baden (fruit wine)	18.37	Other allied states (fruit wine)	11.86
Palatinate	8,665.06	Foreign countries	9,311.87

The exports were as follows:

To—	Quantity.	To—	Quantity.
	Hectoliters.		*Hectoliters.*
Baden	22,801.19	Other allied states	20,634.02
Palatinate	8,940.50	Foreign countries	9,337.17

TOBACCO.

License fees amounted to 175,741.80 marks; stamp fees amounted to 17,582.50 marks.

The result of the tobacco crop in the district for the year 1888 was as follows: Number of planters, 3,269; number of pieces of ground planted, 6,751; area planted, 105,534.18 acres; total yield, 2,120,243 kilograms; average yield per hectare, 2,000 kilograms; average price of 100 kilograms without tax, 46.21 marks.

MISCELLANEOUS STATISTICS.

Statement showing number of vine growers, wholesale wine merchants, and retail wine sellers for the fiscal year.

Chief office of the district.	Vine growers.	Wholesale wine dealers.	Retail wine dealers.
Münster	7,017	21	842
Colmar	25,108	141	975
Total	32,125	162	1,817

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*1 hectoliter is equal to 26½ English gallons.

Table showing number of persons employed in the textile industry in Upper Alsace on October 1, 1888.

Industry.	Factories.		14 to 16 years.			12 to 14 years.		
	Total.	With youthful laborers.	Male.	Female.	Total.	Male.	Female.	Total.
Spinning-mills	68	68	980	952	1,932	411	369	780
Weaving	117	103	789	1,729	2,518	100	535	635
Dyeing, printing, etc	49	34	354	248	602	13	53	66
Cloth factories	3	1	1	11	12	....	8	8
Twisting	11	11	36	101	137	6	19	25
Total	248	217	2,160	3,041	5,201	530	984	1,514

Industry.	Over 16 years.			Total.		
	Male.	Female.	Total.	Male.	Female.	Total.
Spinning-mills	8,301	6,613	14,914	9,692	7,934	17,626
Weaving	8,087	13,645	21,732	8,976	15,909	24,885
Dyeing, printing, etc	4,715	1,646	6,361	5,082	1,947	7,029
Cloth factories	36	84	120	37	103	140
Twisting	329	1,063	1,392	371	1,183	1,554
Total	21,468	23,051	44,519	24,158	27,076	51,234

Table showing the number of young persons employed in the different factories of the Colmar district on October 1, 1888.

Branch of industry.	Colmar district.					Gebweiler district.					Rappolsweiler district.				
	Number of factories.	14 to 16 years.		12 to 14 years.		Number of factories.	14 to 16 years.		12 to 14 years.		Number of factories.	14 to 16 years.		12 to 14 years.	
		Male.	Female.	Male.	Female.		Male.	Female.	Male.	Female.		Male.	Female.	Male.	Female.
Metal manufacture	1	1													
Machine tools and apparatus	3	6													
Textile	36	405	452	72	117	34	366	535	215	292	42	259	291	14	61
Paper and leather	3	2	10	1	8						1	2	3		
Provisions, etc											1	8	11		3
Total	43	414	462	73	125	34	366	535	215	292	44	269	305	14	64

Table showing the total number of workmen employed in the different factories of the Colmar district on October 1, 1888.

Branch of industry.	Colmar district.				Gebweiler district.				Rappolsweiler district.			
	Number of factories.	Male.	Female.	Total.	Number of factories.	Male.	Female.	Total.	Number of factories.	Male.	Female.	Total.
Petroleum					1	44		44				
Metal manufacture	2	45		45	5	590	67	657				
Machine tools and apparatus	5	135		135	4	1,092		1,092				
Chemical					1	6		6				
Textile	41	4,117	4,446	8,563	37	3,250	4,381	7,631	56	3,398	2,762	6,160
Paper and leather	3	85	64	149					2	13	22	35
Wood and carving of wood					2	17		17	1	57		57
Provisions, etc	1	72	27	99					1	44	39	83
Total	52	4,454	4,537	8,991	50	4,999	4,448	9,447	60	3,512	2,823	6,335

Table showing the importation of some of the most important articles imported into Upper Alsace in the year 1889.

Articles.	Quantity.	Articles.	Quantity.
	Kilograms.		*Kilograms.*
Raw linen yarn	10,052	Wine and must in barrels	1,053,373
Cotton:		Champagne	3,850
Raw	526,834		
Yarn	18,867	Other wine (except champagne and cider) in bottles	3,999
Textures	1,968	Raw coffee	131,323
Iron:		Shelled rice	201,356
Raw of all kinds	160,977	Salt	1,133
		Molasses and sirup	343
Half-manufactured articles from iron and coarse iron wares	332,296	Tobacco leaves (in natural state)	108,116
		Refined sugar of all kinds	19,055
		Raw sugar	6,944
Raw jute and manila hemp yarn, one thread, as well as twisted, not marketable	319,456	Petroleum	1,117,612
Arrack, cognac, rum in bottles	5,606	Woolen textures (except list)	8,309
Other brandies	930	Hops	250

Statement showing business transactions of the imperial bank institutions of Alsace-Lorraine during the year 1889.

	Marks.
Metz:	
Lombard transactions	7,769,600
Total money exchange transactions	155,939,800
Check transactions	3,742,700
Indorsement transactions	469,576,200
Business with Imperial and other State banks	23,966,000
Total	660,991,300
Mülhausen, in Alsace:	
Lombard transactions	60,100
Total money exchange transactions	144,519,200
Check transactions	476,700
Indorsement transactions	432,368,300
Business with Imperial and other State banks	552,700
Total	577,977,000
Strasburg, in Alsace:	
Lombard transactions	40,750,500
Total money exchange transactions	238,426,200
Check transactions	564,200
Indorsement transactions	605,012,400
Deposit transactions	100,000
Business with Imperial and other State banks	41,129,400
Total	925,982,700
Grand total	2,164,951,000

EDMUND JOHNSON,
Consul.

UNITED STATES CONSULATE,
Kehl, October 9, 1890.

THE SILVER QUESTION IN MEXICO.

REPORT BY CONSUL-GENERAL SUTTON, OF NUEVO LAREDO.

As two-thirds of the exports of Mexico are precious metals, and 95 per cent. or more of these white metal alone, it is plain that the value of silver is a matter of great importance in this country.

Within the past twelve months the Mexican silver dollar price of New York exchange has gone down from 40 per cent. premium to 7 per cent. premium, while bar silver in London has risen from 43*d.* to 55*d.* Later exchange has risen to, and now stands at, about 15 per cent. premium, while bar silver holds at about 51*d.*

That there has been no crisis during or since these sudden changes is a high compliment to the condition of the finances of the country—governmental, corporate, and individual.

One-third, more or less, of the value of the annual exports has been of "other products," purchased either with silver or its equivalents, and sold in the United States or Europe on the dual standard in the former and the gold value in the latter. This enabled the buyer to pay 5 Mexican dollars, or even more, for what brought him 5 American dollars or a pound sterling; making him a profit, over his freight and other expenses, in about 33 per cent. average of premium during the past five years. As the local prices for these "other products" did not respond readily to the course of exchange, many exporters lost considerably, as white metal rose and exchange fell week after week during the last summer.

Mines which had been abandoned because the margin of profit was too low became again, and for the moment at least, valuable.

If we estimate that on October 1, 1889, there was a capital of $400,000,000 (Mexican) in the mines of this country, that value was raised August 15, 1890, to $500,000,000. The total export of white metal from Mexico for the year ending June 30, 1889, was, in round numbers, $38,000,000, or 915,663 kilograms; and this export suddenly rose, in respect to its world or European or gold value, 25 per cent.

The obligations of the Government, of the various railways, banks, etc., became suddenly worth 25 per cent. more than before, and the foreign value of an annual interest charge paid abroad of 6 or 8 per cent. became, relatively, 7½ or 10 per cent. The earnings of the great railways like the Central, National, and Vera Cruz roads were, perhaps, unchanged in figures; but their interest charges were met by remittances bought at rates which grew steadily less month by month until at one time it was only about 7 per cent. premium instead of the 30 or 40 per cent. of previous years.

If we state the annual imports of Mexico at 30,000,000 United States dollars, ex-import duty, this sum cost Mexican importers, say, one-fourth less than formerly by reason of the smaller sum of eagles needed to buy exchange to cover. If exchange seemed for the moment too high, they shipped their own eagles or silver bullion to New York or London for sale on account.

Merchants with large stocks lost, theoretically, somewhat on their old holdings, but generally managed to work off all or most of their stock by only slightly shading former prices.

Importers availed themselves of these conditions, not only to pay up former accounts, but to cover new and largely increased orders in a trade which seemed to be developing more profit every day. One result of this was a considerable increase in imports. As the exports of white metal increased there was noted a marked scarcity of eagle dollars in Mexico, and only the firmest and most conservative action on the part of the principal banks, efficiently but not actively aided by the Government, averted a money famine and financial panic. Probably the visible supply of white metal in all forms was less on October 15, 1890, than on any other date during the past ten years. As the eagle dollar became more and more valuable, there was a decline in the selling price of "other products," but no special falling off in the amounts.

Domestic manufacturers found themselves compelled to reduce their selling prices nearly 25 per cent., or let their customers buy imported goods. As it was not very feasible to make an immediate reduction in wages and other expenses, many of these industries were, and, in fact, still are, seriously affected.

Under such circumstances all were anxious to know to what price white metal would go and how long this price would hold. These inquiries, of course, involved a consideration of the causes which led up to the recent extreme changes in the value of silver. Undoubtedly, white metal has been held at too low a rate for some years past, but as to how, why, and by whom no unanimous verdict is obtainable. It is equally true that the per capita supply of money in the United States has not increased during recent years as the demands and needs for money have increased. This is probably true in more or less degree of every commercial nation in the world. White metal has been degraded, set to one side, and hindered in the performance of its duty as a co-representative of values.

The world's annual production of gold has increased very slightly—probably not more than $10,000,000 since 1885. Of the total annual production, which is stated in 1885 as $108,435,600, and in 1889 as $118,831,559, probably 50 per cent. has each year been lost to commerce by absorption in the arts and sciences. A net increase of $50,000,000 or $60,000,000 per annum was not enough to meet the growing demand for that metal. As a result gold became relatively scarcer each year, and, as white metal was not allowed to take its proper place, the visible supply of metallic money and of "covered" paper money for commercial needs has grown steadily less each year.

Then, too, within the decade now ending the great trade extensions, opening new markets, new routes, and capitalizing into money values that which before stood barren have caused a great increase of the necessary money supply of the world.

Consolidations of railways, combinations of manufacturers in trusts, syndicates, etc., have called for millions where formerly thousands served.

A dollar does, indeed, in these days buy more of certain things—many times more in some cases; but the great increase in the list of necessities and luxuries gives the dollar of to-day very much less relative value as the measure of expense needed to supply the wants of a family or for commercial needs, as compared with fifty years since.

These are, in small part, reasons for the rise of white metal as a measure of value and exchange. Why it has been kept so long from the performance of this duty may not, perhaps, be stated to any one's complete satisfaction; but I assume that no one can deny that the beginning of the recent rise is due to our legislative action, both in expectation of, and after the passage of, the recent silver bill. For years it had been held too low, and, as a natural consequence, the rebound was in proportion.

When our Government proposed, and later definitely decreed, the purchase of 54,000,000 fine ounces of white metal each year, the value of the product of every silver mine rose with great rapidity all over the world. It was, however, most marked in these Americas, and more so in Mexico than elsewhere, from the fact already stated that two-thirds of the exports of this country are of white metal. As the United States is abundantly able to carry the burden of this purchase, and even, if necessary, to purchase an equal value of gold to prevent our being reduced to a single silver standard, many persons here were confident that silver would soon be at a parity with gold. This brings up the question of the present supply of silver in the world and the annual present and prospective product.

It is, I believe, generally admitted that there is no great or excessive supply of white metal; that the annual product for recent years has not caused the falling in price; and now that prices are again more nearly up to its former value, no great, hoarded stocks can be unloaded to throw prices down. On the contrary, it seems more probable that certain Oriental, and even European, nations will take advantage of the present movement to increase their coinage, both in dollars and in smaller coins.

France is able to keep from $18 to $20 silver per capita in circulation, while the United States has about $7, Germany $4.48, and Great Britain $2.62. In a report made by me in 1887 I estimated the visible supply of silver in Mexico at $5.50. I estimated this coin supply at $6 on January 1, 1890; and now, since the excessive exportation of the past few months, state it at about $5.

Let us now see at what we may fairly estimate the annual world's consumption of silver, and compare it with the past and probable future output:

Countries.	Quantity.	Countries.	Quantity.
	Kilograms.		*Kilograms.*
United States	1,700,000	Mexico	50,000
India	1,300,000	Cochin China	20,000
China	400,000	All others	110,000
Japan	240,000	Total	4,200,000
Austria	120,000	Industrial consumption	600,000
Straits colonies	100,000		
Great Britain and colonies	100,000	Grand total	4,800,000
Servia and Bulgaria	60,000		

The total production of white metal for the three calendar years 1887, 1888, and 1889 may be stated as follows:

Countries.	1887.	1888.	1889.
	Kilograms.	*Kilograms.*	*Kilograms.*
United States	1,283,855	1,424,326	1,555,486
Australasia	6,422	120,308	144,369
Mexico	904,000	955,500	1,335,828
Europe:			
Russia	13,522	14,523	14,523
Germany	31,564	32,051	32,040
Austria-Hungary	53,391	53,391	53,391
Sweden	5,828	4,648	4,648
Norway	7,200	7,200	7,200
Italy	33,839	34,280	34,280
Spain	58,711	51,502	51,502
Turkey	1,323	1,323	1,323
France	54,314	49,396	49,396
Great Britain	99,964	9,047	8,734
Dominion of Canada	10,868	10,868	10,868
South America:			
Argentine Republic	722	10,226	10,226
Colombia	24,061	24,061	24,061
Bolivia	137,468	230,460	230,460
Chili	199,516	185,851	185,851
Peru	75,263	75,263	75,263
Central American states	48,123	48,123	48,123
Japan	32,065	42,424	42,424
Total	2,292,451	3,424,771	3,919,996

The data as to Mexico is that furnished by Mr. J. Staveli, chief of the Mexican treasury bureau of statistics. Although I consider his estimate too high, I prefer to leave it as it is with this comment.

The exports for the three years of Mexican silver in all forms, reduced from Mexico eagle dollar values at $41.50, would be 786,645 kilograms, 731,232 kilograms, and 915,663 kilograms. Nearly the total product is exported, and in these later years there is much less sent out without proper export papers. I am inclined to think the amount so sent out is small. It does not seem to me that the increased deposits at banks, that used in the arts, etc., and that smuggled out could so increase the stated exports as to reach the total given. I would not estimate these as amounting to over 200,000 kilograms per annum.

Now, if the world's production for 1890 shall increase no more than did 1889 over 1888, the total would be 4,514,221 kilograms, or 384,779 kilograms less than my estimate of consumption.

It seems clear to me, in spite of some estimates to the contrary, that there will be an increase in the output for 1890, and that this increase will hold for some years, if white metal remains at present rates.

If bar silver should hold at 51*d.* (eagle dollars at 50*d.* and New York exchange at, say, 15 per cent. premium), I would estimate this increased output as follows:

Countries.	Kilograms.	Per cent.
United States	233,324	15
Mexico	200,374	15
Central and South America	57,398	20
Australasia	14,438	10
Other	15,516	5
Total	521,050	....

This estimated increase does not seem improbable, when we note that the increased output in the United States for 1889 over 1888 was about 10 per cent., and in Mexico over 30 per cent., even with the low rate of white metal which obtained in that period. I would state the percentage of increased output in Mexico higher, if I were using my own estimate of the product.

The output of the rest of the world is not specially important in this connection. As their mining districts are already in great part developed and some of their mines are running out or falling off in their product, the increase is not likely to be more than I stated, taken as a whole.

In my estimate of probable consumption, Servia and Bulgaria may not take the 60,000 kilograms, although it is well known that the former badly needs 6,000,000 dinars and the latter 8,000,000 in smaller coins. The final item of 110,000 kilograms may or may not be taken.

My estimate as to Oriental consumptiom may also be too high, although this is substantially the same as that made by so eminent an authority as Mr. O. Haupt. It, however, seems probable that the Orient will take that much any way, whether because of legitimate demand or because it is, and, perforce, must be, the overflow ground of any of the world's excess silver product. Taken altogether, it seems more than likely that the total amount given will be absorbed, even if not in the exact amounts stated. I also estimate that, if silver holds up in price, other nations will so increase their coinage in another year that the consumption of 1891 will be even more than for 1890. Now that silver has received so practical an indorsement by the strongest financial power in the world, it seems more than probable that other nations, which have hitherto feared to increase their silver coinage, will now be ready to do this.

Some leading European nations, heretofore hostile to white metal, are likely to find themselves forced to join, in part at least, in larger use of silver, or lose a great portion of their trade and influence in Spanish America. The conditions in Mexico and the republics to the south are such as to warrant the estimate that there will be a considerable increase in the silver required to carry on their trade.

Here in Mexico mining is the great industry, and is carried on, so far as concerns the greater properties, in the most legitimate and business-like manner. There are many mines here which have long been idle because of expense of timbering, or of getting to the surface, or of cost of treatment. In others certain veins have been let alone, while the higher class only have been handled. There are deposits of low-grade silver-lead and silver-iron ores, which have never been worked until within a few months. The silver-lead ore rulings of our Treasury in 1889 and the new tariff just in effect (October 6) have caused the erection of smelters in many portions of Mexico, and they will handle these low-grade ores profitably and increase the output.

WARNER P. SUTTON,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Nuevo Laredo, October 16, 1890.

WOOL INDUSTRY OF FRANCE.

REPORT BY CONSUL WILLIAMS, OF ROUEN.

I am indebted to the Commercial Bulletin of the Chamber of Commerce of Elbeuf and other journals for the following statistics concerning the wool trade for the month of September and the second quarter of the year.

WOOL.

French.—There was no stock of French wools.

Australian.—The fourth series of sales commenced September 10 and ended October 10. The share of England is estimated at 96,000 bales; that of the Continent at 126,000 bales. In comparison with the prices at the close of the last sales, good marks of Australian brought a penny more and average qualities half a penny.

Plata.—At Havre 750 bales were sold and 500 bales for future delivery. The demand was active for good Buenos Ayres at a slight advance over the August prices. The stock is 1,943 bales. At Antwerp, on the market, 1,560 bales have been sold. The greater part of the sales were for combing at the highest price of the last public sales and in some instances an advance of 5 centimes. The stock is 9,332 bales, and the next sales begin on the 27th or 28th of October. Of wool in good condition 965 bales have been sold at 1.60 to 1.725 francs per kilogram. The stock is 9,079 bales. Noils, scarce and firmly held; combed and yarn, prices firm.

WOOL MANUFACTURES.

The manufacture of fancy goods has been moderate during the month of September. Cloths for military and administrative use and for liveries have followed the usual course; cheviot and cloths for ladies' wear have been in good demand. The fine weather of September has retarded the sale of materials for winter use.

The manufacture of fancy cloths was brisk during the first two months of this quarter, but diminished in the third. The manufacture of all of the other kinds of cloth above enumerated has been active at the close of the quarter to replace exhausted stock. Orders for summer stock were less numerous than expected, and the mild weather of September delayed winter orders.

At Fourmies some lots of combed have been sold within fifteen days for supplying weavers at fair prices. The purchases being small at the London sales, the supply of combed was difficult to obtain. The rupture of the syndicate has tended to reduce somewhat the prices. The price of yarn has continued bad, but stocks have been worked off and none remain. The price of fabrics being unsatisfactory, manufacturers have limited their production, stopping a great many looms.

The situation at Rheims is, on the whole, hard for the producer, although the shipments in September were quite up to the average. The tendency in favor of sellers of combed has been quite marked for the last fifteen days on account of the penury of the stock. The arrival of late London purchases will soon remedy this state of affairs. Spinning-mills of combed wool are prosperous, while those of carded are doing badly. Transactions in merinoes and cashmeres for home trade are brisk; for foreign trade, the buyers and sellers do not seem to be able to come to terms.

The following table presents a view of the foreign trade of France during the first eight months of the year 1890, compared with the corresponding period of preceding years, in regard to wool and its products:

IMPORTS.

Description.	1890.	1889.	1888.
	Francs.	*Francs.*	*Francs.*
Wool	276,246,000	306,601,000	268,360,000
Spun wool	6,569,000	8,792,000	9,562,000
Woolen fabrics	46,833,000	45,137,000	44,408,000

EXPORTS.

Wool	81,613,000	115,364,000	86,724,000
Spun wool	25,952,000	36,641,000	23,803,000
Woolen fabrics	252,013,000	237,552,000	220,319,000

EXPORTS TO THE UNITED STATES.

In anticipation of the passage of the McKinley Bill great efforts were made at all of the European centers of the wool trade to inundate the American markets with their goods. This object was greatly interfered with and almost entirely defeated by the short time allowed for their operations. A lull, however, has now taken place, and great timidity is shown in venturing upon any considerable transactions. Soon affairs will be restored to their normal conditions, and such merchandise will continue to be shipped to America as its inhabitants, justly or unjustly, consider superior in quality to those which they themselves can manufacture. With such protection as is now, and almost always has been, thrown about the American manufacturer, he should be the producer of unrivaled fabrics and bid defiance to any attempts to compete in quality or price with his manufactures.

CHAS. P. WILLIAMS,
Consul.

UNITED STATES CONSULATE,
Rouen, October 22, 1890.

THE LACE-MAKERS' STRIKE AT CALAIS.

REPORT BY CONSUL WILLIAMS, OF ROUEN.

HISTORY OF MACHINE-MADE LACE IN FRANCE.

The date of the manufacture of tulle in France is relatively recent. It was unknown at the beginning of this century. Tulle, in fact, is only lace manufactured by machinery. Lace manufacture has been always a French industry. Chantilly, Alençon, Velay, and Flanders have retained a celebrity for this branch of art which has survived the destruction of their workshops. The high price of lace and the increased consumption led to the fabrication by machinery to diminish its cost of production. To Nottingham is accredited the establishment of the first machinery for the manufacture of lace. The inventor was a man named Lee, who turned mechanic on account of a love affair. He came to France and presented his invention to Henry IV; he protected him, but the death of the King caused Lee to be forgotten, and he died of grief. The English workmen whom he brought with him returned to their country and established the industry which the French had disdained. The machines of Lee were improved, even in France, where, meanwhile, notwithstanding the encouragement of the Academy of Science, the inventors could not introduce their designs. In 1799 John Lindley, of Nottingham, discovered the bobbin, by means of which he could imitate the net-work of lace. In 1807 a workman named Heatcot discovered the hexagon mesh, which is the foundation of tulle. He joined Lindley and manufactured tulle on a large scale, and both realized fortunes. Other inventions rapidly followed. France, meanwhile, stood aloof, and tulle remained an English monopoly. Parliament forbade, under terrible penalties, any one to divulge the secret of this manufacture to a foreigner. The transmission of a machine to the Continent was punished with death. Such severe restrictions naturally produced the contrary effect from that which was anticipated; they aroused the cupidity of smugglers, who saw large profits in a contraband trade.

In 1815 or 1817 a machine was brought into France. Some say that in 1816, at Douai, Thomason & Co. brought a machine, carried from Nottingham by three Englishmen—Corbett, Blackter, and Cutt; others say at Calais, in 1817, a machine was brought by Clark, associated with Bonington and Webster, the latter of whom had inhabited Calais since 1815.

However this may be, Webster was known as the pioneer in tulle manufacture at Calais, where he established his works at St. Pierre, on the bank of the canal. After a brief interruption, he resumed business in 1819 with Bonington, the father of the painter. In the same year five English workmen from Nottingham brought their machinery piece by piece and established themselves at Calais. The names of these men were James Clark, Richard Polhill, Thomas and Edmond Pain, and Thomas Danton. These five Englishmen were condemned to death for contumacy in having fraudulently taken out of their country a machine for manufacturing lace. They were pardoned only after the accession of George IV.

The industry was hampered on account of the difficulty and expense of procuring machines. These could only be brought in by pieces. The smugglers ran the blockade and landed at Boulogne-sur-Mer or at Calais. The smuggler assisted the trade also by bringing in the thread manufactured in England for the use of the lace manufacturer, the French spinners having succeeded in prohibiting the entry of thread. In spite of this continual struggle the number of factories increased; St. Pierre had four, Guines had a bleaching establishment, and Calais had eight factories. This city seemed destined to become a lace center, but the presence of the workmen and the din of the machinery were so repugnant to these quiet citizens that, at their instigation, the mayor took such steps to restrain their movements and control their hours of work that they gradually moved towards St. Pierre, which was not within his jurisdiction. These works were dependent upon foreign workshops for their machinery till 1823, when two mechanics established a factory for the construction of lace machines.

From 1824 to 1826 tulle was all the rage. France and England realized enormous profits from this trade. The increase in the establishment of factories was very great; St. Pierre alone had 23 factories and 8 workshops for the construction of machines. In 1832 a violent crisis took place, owing, chiefly, to the excessive duty laid upon English thread. The number of factories by this time had increased to 323, of which 136 were at Calais, 109 at St. Pierre, and 78 in the suburbs. Each factory had but two looms; the work was plain.

It was not long before an entire change was effected, and Calais became what it is to-day by the application of the Jacquard loom to the manufacture of tulle. This innovation took place in 1841. The crisis of 1834 had so reduced the number of factories that the number of manufacturers from 1834 to 1837 fell from 302 to 249, and the workmen from 2,680 to 1,594. Many emigrated, with their looms, to Russia, Belgium, Lyons, and St. Quentin. The application of the Jacquard system to the loom for tulle made by Fergusson and Martin arrested the decline of this trade. Steam had already come to the rescue, the first engine being applied to this use in 1839 at St. Pierre. Furnished with steam-power and a loom admitting the execution of the most delicate designs, St. Pierre continued to prosper. The report at the time of the London Exposition in 1851 stated that St. Pierre had 130 factories and 500 looms, worth 10,000,000 francs, and nearly that amount of exports. At the Paris Exposition of 1855 the number of looms had increased to 610, against 3,500 at Nottingham; that of the workmen to 5,000, and the value of the product to 15,000,000 francs.

Treaties of commerce gave another impetus to this trade by permitting the entry of thread at a lower rate, and new markets opened up. In 1862 the superiority of the French manufacture over that of England was recognized by the fact that Great Britain bought in that year 26,000 kilograms, having increased the amount from 3,600 kilograms in 1860. In 1870 the number of looms was 939, valued at 15,000,000 francs. After the war the impetus was still greater, and at the time of the exposition of 1878 St. Pierre had 1,506 looms, moved by 80 engines, belonging to 80 manufactories. The value of the plant was 40,000,000 francs, the annual output 60,000,000 francs, and the number of workmen employed 10,000. The prosperity of St. Pierre seemed assured, when a new crisis arose in 1885. It was expected that the lace called Chantilly would rule the market, and large quantities had been manufactured and stored in 1884 with a view of anticipating the presupposed demand. A sudden and unaccountable change of fashion gave preference to a woolen lace manufactured at Velay, Auvergne, and Forez. There were large surplus stocks, consequently, held in nearly all the houses. The loss was very great.

A financial panic took place the next year. The tulle industry requires large advances for the purchase of raw materials. Many houses ask at certain seasons advances from 100,000 to 150,000 francs from the local banks. One of these banks suspended payment. Then arose a veritable panic. Other banks demanded their loans; some patrons could comply, others could not, while many were obliged to sell their surplus stock at any price obtainable to meet their engagements, for the most scrupulous honesty prevails at Calais.

STRIKE OF LACE WORKERS AND MANUFACTURERS.

Such a state of affairs could only result in a shrinkage of price, diminution of wages, the control by foreign agents of small factories, and, in fine, a general discontentment, which has had a tendency to increase. In order to counteract this situation and to restore a more healthy tone to the trade, the owners have brought about the present lockout. The lockout, or strike, as it partakes of the nature of both, began by putting to the "index" (their term for boycotting) three lace firms, and no workmen belonging to the union could enter, and non-union men did not dare to supply their places. Other lace manufacturers remonstrated with the union men, and pointed out that their conduct was shameful, and threatened the chairman of the union to reciprocate the workmen's courtesy by closing their establishments. As the workmen still refused to remove the index from the two or three beleaguered factories, on Saturday, September 21, manufacturers representing about two-thirds of the trade gave notice to their workmen for the next Saturday, and on the 27th over twelve hundred men were stopped by the "masters' strike."

There are seventeen hundred looms, representing a capital of 42,500,000 francs. All of the small manufacturers are former workmen who have been able to purchase looms. Those who have been economical and industrious have become proprietors without very great difficulty, 100 to 150 francs per week being not unusual wages. This rate of wages has had a disastrous effect upon others, who spend their time and money at the low drinking houses or on planning for pleasure excursions to Boulogne-sur-Mer, and leave there the best part of their earnings. When times are dull and hard, this class of workmen have nothing to live on, and are always ready to strike.

The changes in fashion and competition required an alteration of styles and curtailment of wages. All piece-work has its mode of measurement; that of tulle is the rack, which represents three hundred and sixty meshes. The price of the rack varies according to the size of the meshes, the pattern, and the number of threads, etc., and ranges between 48 centimes (9.3 cents) and 1.80 francs (35.3 cents). The crisis reduced this rate, so that which formerly paid 55 centimes (11 cents) pays but 20 centimes (4 cents). The workmen claimed that there were great discrepancies in the prices paid by different manufacturers. The houses which were said to have lowered their prices the most were put at the index. The other manufacturers were willing to establish a minimum rate. There is little doubt that an understanding could have been reached, if it had not been for the interference of outsiders and a low class of politicians. At the head of the movement was an outsider, Citizen Delcluze, a former clerk, active and intelligent, who served a term in prison for defamation, where he arranged his socialistic programme. He had succeeded in getting elected a member of the municipal council, and was elected a member of the general council on September 27. His rôle was simple. He promised every thing to every body, preached in favor of the strikes, and was kind enough to declare that, if he was elected, he would render every body happy and each workman a millionaire, and, above all, abolish all duty on beer and spirits.

Since Delcluze took the head of the movement, conciliation appears distant. He caused the index to be directed against one of the leading houses which paid the highest price for labor. This house called for an investigation by a delegation, a majority of whom were workmen, who reported that the charges made by Delcluze were false. This strike will have a tendency to clear some of the accumulated stock, but, if continued, must benefit the rival establishments of other countries where lace is manufactured—at Nottingham, in England; Plauen, in Saxony; Leipsic, Warsaw, and Vienna. The orders once filled in these places, others will follow suit, and a permanent loss ensue to Calais. This is not the only loss, as, in addition to those engaged in the factories, there are many thousands of persons (estimated at twenty thousand) who depend upon this industry for a living—draughtsmen, shearers, dyers, repairers, etc. Doubtless better counsel will convince these workmen that their ends are not attainable by the course which they are pursuing, and that their grievances will be removed more readily by applying directly through the intermediary of their own number rather than having recourse to political leaders.

The revenue from the tariff on laces has been large to the United States and easily collectable, and has not suffered in consequence of any losses of the manufacturers. This well-protected industry has, however, never seemed to strike the fancy of manufacturers at home, as probably all of the difficulties through which a new industry is established had disappeared, and the task of making money from lace manufacture was too simple to arrest their attention.

CHAS. P. WILLIAMS,
Consul.

UNITED STATES CONSULATE,
Rouen, October 16, 1890.

SHIPPING AT PERNAMBUCO.

REPORT BY CONSUL STEVENS.

The foreign tonnage of the four principal flags entering the port of Pernambuco, during the first six months of 1890, was as follows:

Months.	American.	German.	French.	English.
	Tons.	*Tons.*	*Tons.*	*Tons.*
January	8,774	10,304	11,813	27,718
February	4,958	8,136	10,866	23,260
March	5,723	7,457	9,449	28,564
April	5,348	7,092	8,351	28,423
May	6,521	12,503	11,669	21,371
June	7,152	11,273	13,847	37,591
Total	38,476	56,765	65,995	166,927

EDWIN STEVENS,
Consul.

UNITED STATES CONSULATE,
Pernambuco, October 2, 1890.

CONSULAR REPORTS

ON

COMMERCE, MANUFACTURES, ETC.

No. 123.—DECEMBER, 1890.

THE BAHAMAS.

REPORT BY CONSUL McLAIN, OF NASSAU.

THE RUBBER TREE.

Caoutchouc, or India rubber, can not properly be called a product of this district, though a few trees grow on this island from which the juice might be extracted. These trees, commonly called the rubber tree, have the botanical name of *Siphonia elastica,* and are used only for shade and ornamental purposes. No effort, so far as I can learn, has ever been made to cultivate the trees with a view to gathering caoutchouc; and whether such culture could be made with profit I am unable to say, nor can I find any person here competent to give an intelligent opinion upon the subject. The tree grows with apparent vigor; but whether, in this sterile and rocky soil, it would yield juice in paying quantities is problematical.

MANUFACTURES OF RUBBER.

There are no importations of crude rubber into this colony, and, as there is no local production of caoutchouc, it naturally follows that no rubber goods are made in this district.

THE TRADE IN RUBBER GOODS.

The sale of rubber goods in this colony is only nominal. The amount imported can not be exactly stated, because such articles are not entered separately at the custom-house; but, after careful inquiry among dealers, I am confident that the total value of such goods imported will not exceed $500 per annum. They consist of rubber overshoes, rubber-soled tennis shoes, overalls, water-proofs, sewing-machine rings, combs, syringes, toys, etc.

The import duty on rubber goods is 20 per cent. ad valorem. Nearly every thing in this line is imported from the United States through commission houses in New York.

CAN TRADE BE INCREASED?

I can not say any thing encouraging in this direction. Rubber goods are not in much favor in this market, and customers for them are few indeed. The goods do not keep well. The hot, damp climate injures them quickly and seriously. They speedily become sticky and lose their strength. A merchant showed me a consignment of overalls, in stock less than three months, which had so melted and run together as to be unsalable and a dead loss to him.

In view of this condition of affairs, I can not advise our manufacturers of rubber goods to spend their time, labor, and money in an effort to enlarge their trade with this colony, for I do not believe any good results can be accomplished.

THOMAS J. McLAIN,
Consul.

UNITED STATES CONSULATE,
Nassau, October 16, 1890.

PETROLEUM THROUGH THE SUEZ CANAL.

REPORT BY ACTING CONSUL-GENERAL GRANT, OF CAIRO.

I have the honor to inclose a report giving the quantities of, and number of ships laden with, petroleum in transit through the Suez Canal; also the quantity of petroleum imported into Egypt during the years 1887, 1888, and 1889, and that imported at Port Said alone for those years and the first half of 1890.

By these figures it will be seen that Russian petroleum, although considered inferior to that of America, is getting the upper hand in the Egyptian market. American petroleum, however, appears to be preferred, as it burns better and clearer and gives off much less smoke.

By comparing the figures in the inclosed report it will be observed that in 1887 there was a difference in the value of petroleum imported into Egypt of $76,825 in favor of America. The next year, 1888, however, the difference in favor of Russia was $309,860, and in 1889 this difference nearly doubled, being $599,280. This shows plainly that Russian petroleum is rapidly gaining ground. The imports of petroleum at Port Said during the first six months of 1890 were 95,616 cases from Russia and nothing from the United States. It will be further seen that freight from Batoum to Egypt is 13.5 cents per case in summer, and from New York to Egypt during the same period is 19.3 cents per case, showing a difference of 30 per cent. In winter these freights appear to be 5 centimes higher per case. Prices, as sold at Port Said at present, are $1.54⅜ for Russian and $1.73 7/16 for American petroleum, per case. As sold in Cairo at present, prices are, respectively, $1.35 1/16 for Russian and $1.56⅛ for American petroleum, per case. Russian and American cases contain about the same quantity of oil.

I think that with a little enterprise the importation of American petroleum into Egypt might be increased.

Table showing petroleum shipments through the Suez Canal in 1887.

Date.	Steamer.	For—	Net tonnage.
From Batoum.			
January 7	Rimpha	Bombay	1,490
January 9	Mounts Bay	do	1,500
January 31	Pemptos	do	1,764
February 4	Ascalon	do	1,523
February 19	John Morrison	do	1,286
April 9	Cousins Arbib	do	1,646
July 7	Regal	Rangoon	1,636
August 7	Empire	Kurrachee	1,375
August 10	Armathwaite	Madras	958
August 30	Baskenna Bay	Bombay	1,500
October 7	Castle Eden	Calcutta	1,555
November 1	Castlehill	Bombay	1,185
November 14	Chancellor	Hong-Kong	1,328
December 17	Castledale	Bombay	1,532
December 23	Avlona	do	1,279
Total			21,557
From New York.			
January 19	Cachemire	Bombay	2,509
April 30	Etna	do	1,767
Total			4,276
Difference in favor of Batoum			17,281

Table showing petroleum shipments through the Suez Canal in 1888.

Date.	Steamer.	For—	Net tonnage.
From Batoum.			
February 3	Kildare	Bombay	2,277
February 8	Caldonia	Rangoon	1,295
February 10	Cleddy	Calcutta	1,425
February 19	Joseph Arbib	Bombay	1,642
February 26	Glenmorven	do	1,826
March 8	Glendower	Colombo	1,650
March 21	Liscard	Bombay	1,278
March 23	Glengail	do	1,934
April 3	Katie	do	2,117
April 12	Carlton	do	1,322
April 15	Westbourne	Kurrachee	1,227
April 17	Freya	Vladivostock	1,345
April 24	Castle Eden	Colombo	1,555
April 28	Principia	Bombay	1,790
May 8	Monarch	Yokohama	1,522
May 11	Strathairly	Saigon	1,237
May 24	Anjer Head	Hong-Kong	2,300
June 11	Cairo	Calcutta	1,469
June 23	Clapeyron	Penang	1,260

Table showing petroleum shipments through the Suez Canal in 1888—Continued.

Date.	Steamer.	For—	Net tonnage.
From Batoum—Continued.			
June 21	Westmeath	Yokohama	2,095
June 22	Thor	Hong Kong	1,228
July 8	Glendower	do	1,650
July 16	Mount Oliver	Calcutta	1,639
July 17	Liscard	Kurrachee	1,278
July 19	Badsworth	Penang	1,305
August 5	Ehrenfels	Shanghai	1,589
August 8	Ashburne	Rangoon	1,613
August 11	Glenmorven	Shanghai	1,806
August 20	Eastbourne	Bombay	1,509
August 23	Stanley	Galle	1,313
September 4	Cousins Arbib	Bombay	1,646
September 13	Brankelow	Calcutta	1,660
September 14	Stella	Madras	1,574
September 22	Bryn Glas	Bombay	1,504
October 1	Endeavour	Shanghai	1,640
October 8	Mount Lebanon	Bombay	1,555
October 13	Malabar	Saigon	1,263
October 23	Castle Eden	Calcutta	1,555
November 8	St. Albans	Singapore	1,315
November 28	Africa	Calcutta	1,600
November 30	Strathearn	Bombay	1,855
December 5	Naples	Kurrachee	1,422
December 14	Talabah	Singapore	1,069
December 18	Perim	Bombay	867
Total			67,022
From New York.			
May 4	Serapis	Jeddah	1,271
July 29	Iberia	Bussorah	1,060
August 9	Apenrade	Yokohama	1,476
September 8	Strathleven	China	1,588
September 30	Glenshiel	Yokohama	2,240
November 30	Gleneagles	Hong-Kong	1,837
Total			9,472
Difference in favor of Batoum			57,550

Table showing petroleum shipments through the Suez Canal in 1889.

Date.	Steamer.	For—	Net tonnage.
From Batoum.			
January 9	Felbridge	Colombo	1,336
January 12	Persian Prince	Bombay	1,499
January 14	Ehrenfels	Yokohama	1,522
January 19	Albe	Kurrachee	1,134
Do	Uppingham	Yokohama	1,431
January 23	Rugby	Rangoon	1,096
January 28	Transition	Bassorah	1,092
January 30	Lionacrieve	Bombay	1,831
February 2	Fastnet	do	1,457
February 6	Thetis	Singapore	1,157
February 10	Ardbeg	Bombay	1,467
February 19	Badsworth	Shanghai	1,273
February 20	Wileysike	Calcutta	1,622

Table showing petroleum shipments through the Suez Canal in 1889—Continued.

Date.	Steamer.	For—	Net tonnage.
From Batoum—Continued.			
March 3	Wakefield	Penang	1,571
March 6	Arbib Brothers	Bombay	1,739
March 7	Marlborough	Penang	1,164
March 21	Brankelow	Shanghai	1,624
March 28	Perim	Singapore	867
April 5	Florida	Penang	2,043
April 6	Essex	Bombay	1,675
April 7	Port Fairy	Shanghai	1,644
April 22	Cascapedia	Japan	1,924
April 26	Ashburne	Rangoon	1,613
May 1	Sultan	Bombay	1,775
May 9	Tiverton	Japan	1,743
May 11	Felbridge	Rangoon	1,336
May 25	Lochiel	Hong-Kong	1,379
May 26	Athalie	Saigon	1,409
June 9	Kent	Hong-Kong	1,680
June 11	Palestro	Shanghai	2,196
June 15	Marion	Penang	1,319
June 17	Liscard	Rangoon	1,241
June 25	Ethelburga	Kurrachee	1,446
Do	Ehrenfels	Shanghai	1,617
July 1	Sherborne	Bangkok	1,181
July 6	Strathblane	Batavia	1,518
July 10	Cyphrenes	Madras	1,309
July 15	Falls of Inversnaid	Japan	1,710
July 17	Raji Karim	Jeddah	439
July 27	Glenochil	Yokohama	1,581
July 30	Lesseps	Batavia	1,364
July 31	Raylton Discon	Manila	1,388
August 3	Harald Haarfager	Batavia	1,531
August 13	Trifels	China	1,816
August 29	Livingstone	Batavia	1,272
September 3	Teviot	do	1,349
September 11	Helene Rickmers	Yokohama	2,008
September 14	Asama	Bombay	2,450
October 14	Michael Jebsen	Nagasaki	710
October 19	Byron	Batavia	1,319
October 28	Durham	Bombay	2,131
Do	Badsworth	do	1,273
October 31	Alhena	Batavia	1,493
November 10	Arbib Brothers	Bombay	1,739
December 4	Humber	Singapore	1,417
December 5	Rannoch	Madras	1,172
December 14	Blackheath	Bombay	1,675
December 28	Kinloch	Penang	1,177
December 29	St. Albans	Kurrachee	1,315
Total from Batoum			87,229
From New York.			
February 2	Trifels	Nagasaki	1,816
Do	Dorset	Singapore	1,716
February 7	Pilurnum	Bombay	1,427
February 22	Spindrift	Japan	2,010
March 17	Monarch	do	1,522
March 19	Waverley	Calcutta	2,022
March 23	Euphrates	Singapore	1,300
April 17	Lennox	Shanghai	1,327
April 18	Unionist	do	1,403

Table showing petroleum shipments through the Suez Canal in 1889—Continued.

Date.	Steamer.	For—	Net tonnage.
From New York—Continued.			
April 21	Cheribon	Rangoon	2,313
April 26	Nubia	Singapore	2,319
May 3	Manitoba	Kurrachee	1,386
May 17	St. Albans	Penang	1,315
June 21	Victory	Yokohama	1,846
July 6	St. Fillans	Rangoon	1,939
July 20	Linda	Bombay	1,567
August 11	St. Dunstan	Kurrachee	1,414
October 14	Monmouthshire	Hodeida	1,871
October 24	President Garfield	Bombay	1,289
December 9	Dalhousie	Calcutta	62
December 18	Shakespeare	Japan	1,241
Total from New York			33,105
Difference in favor of Batoum			54,124

Table showing petroleum shipments through the Suez Canal in 1890 (first six months).

Date.	Steamer.	For—	Net tonnage.
From Batoum.			
January 8	Eugenie	Penang	1,737
January 13	Joseph Arbib	Bombay	1,642
January 18	Nawab	do	2,041
January 19	Kara	Yokohama	1,507
January 20	Nicolans	Shanghai	1,584
February 6	Glendower	Bombay	1,650
February 8	Hakon Adelsten	Batavia	1,048
February 9	Deuteros	Kobé	1,252
February 10	Ossian	Batavia	1,211
February 14	Knight of St. George	Bombay	1,934
February 17	Trifels	do	1,826
February 20	Essex	Java	1,675
February 24	Eastbourne	Bombay	1,463
February 26	Mount Lebanon	Colombo	1,555
March 5	Gairloch	Singapore	1,422
March 12	Amana	Bombay	2,049
March 22	Kent	do	1,600
March 27	Shelley	Shanghai	1,304
Do	John Bright	Bombay	1,739
March 30	Eton	do	1,746
April 3	Riversdale	Hong-Kong	2,311
April 9	Germania	Bombay	1,948
April 13	Arbib Brothers	do	1,739
April 16	Mount Tabor	Manila	1,494
April 17	Hebe	Bangkok	1,696
Do	Straits of Belle Isle	Hong-Kong	1,586
May 3	Maple Branch	Bombay	1,735
May 6	Canton	Wadivostock	2,176
May 8	Skarpsno	Batavia	1,395
May 22	Glenelg	do	1,617
May 30	Pemptos	Wadivostock	1,764
May 31	Malabar	Shanghai	2,263
June 16	Mount Lebanon	Madras	1,535
June 21	Mortlake	Kurrachee	1,808
Do	Angers	Colombo	2,077

Table showing petroleum shipments through the Suez Canal in 1890, etc.—Continued.

Date.	Steamer.	For—	Net tonnage.
From Batoum—Continued.			
June 26	Dryfesdale	Singapore	1,574
June 28	Oronsay	do	1,350
Total from Batoum			59,084
From New York.			
January 4	Strathearn	Aden	1,855
January 20	Albany	Hong-Kong	1,489
March 10	Falls of Inversnaid	Bombay	1,710
March 20	Delcomyn	Jeddah	1,184
Total from New York			6,238
Difference in favor of Batoum			52,846

I regret that I am unable to give the exact quantities of oil carried by each vessel. I am told, however, that cargoes run from 90,000 to 120,000 cases, and I should say that 100,000 cases per steamer could be considered a fair average. The ships now pay 9½ francs (about $1.83) per ton on the Suez Canal certificate.

*Imports of petroleum at Port Said.**

Year.	America.	Batoum.
	Cases.	*Cases.*
1887	102,450	77,121
1888	30,700	200,103½
1889	50,872	212,286
1890 (six months)		95,616

Cost of freight per case.

From—	Summer.	Winter.
	Francs.	*Francs.*
United States	1.00	1.05
Batoum	.70	.75

Value of petroleum imported into Egypt from 1887 to 1889.†

Year.	American.	Russian.
1887	$442,070	$365,245
1888	142,575	452,435
1889	235,230	834,510

* Prepared from figures furnished by the consular agent at Port Said.

† Taken from the report of the director-general of customs.

Petroleum in transit during 1889.

Description	Alexandria.		Port Said.		Suez.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Cases.		*Cases.*		*Cases.*	
American	200	$215.00	200	$215.00	....	....
Russian	2,000	1,992.50	1,700	1,707.50	300	$[illegible]5
Total	2,200	2,207.50	1,900	1,922.50	300	[illegible]5

It appears that the above figures form the total petroleum trade with Egypt, none being imported from any other country except the United States and Russia.

LOUIS B. GRANT,
Acting Consul-General.

UNITED STATES AGENCY AND CONSULATE-GENERAL,
Cairo, October 6, 1890.

GOLD MINING IN THE MALAY PENINSULA.

REPORT BY CONSUL WILDMAN, OF SINGAPORE.

On September 17, 1890, the first gold arrived in Singapore that has ever been mined with satisfactory results on the Malay Peninsula by European miners. The exact amount turned over by the superintendent, Mr. Bibby, to officers of the Raub Australian Syndicate here was 867 ounces 9 pennyweights 12 grains, worth, in round figures, when reduced to American currency, $14,000. The assays so far show an average of about $48 to the ton.

The Malay Peninsula and that part of it situated in the province of Pahang, this consular district, has been prospected for years both by European and Chinese companies, and numerous attempts have been made to ascertain the exact status of the gold belt, but without any definite result. A year ago the present company was organized, and commenced work at Raub, about 175 miles north of Singapore. The site of the workings was a deep water hole, and around all were dense jungles, where no European had ever done a single day's work. During the past year a ten-stamp mill and engines have been conveyed from Singapore up several hundred miles of tortuous and obstructed river routes; houses, roads, and tram-ways built; a shaft has been sunk to the depth fo 80 feet; galleries have been driven; and at the first hasty crushing, after twenty-five days of work, nearly $14,000 worth of fine milling gold has been extracted.

Of course, the showing so far does not prove implicitly to an American miner that the mine will be remunerative, yet all the ground indications are good. The country formation is a soft shale and granite. The vein is of good width, and has been prospected for some distance. The only drawback is the amount of water that has to be pumped from the mine; but, on the other hand, labor is never over 60 cents per day, and wood and timber are ready at hand.

The trouble with profitable workings of mines hitherto has been the extremely high-priced English management. With an American company and American management, such as we have in the United States, I see no reason why the Malay Peninsula should not pay big returns for capital invested. The first assay of nearly $50 to the ton is certainly good, when we reflect that in the Black Hills gold is smelted as low as $5 to the ton.

This city and the whole of the Straits Settlements are excited over the gold find, and I have often heard the leading men of the colony wish for some experienced American miners to more thoroughly open up the country. A few months more of work will undoubtedly develop the country to such an extent as to leave no doubt as to the real resources of the section.

ROUNSEVELLE WILDMAN,
Consul.

UNITED STATES CONSULATE,
Singapore, September 22, 1890.

SILK CULTURE IN JAPAN.

REPORT BY CONSUL SMITHERS, OF OSAKA AND HIOGO.

CULTIVATING THE TREE.

There are four different methods of propagating the mulberry-tree—by sowing the seed, by grafting, by layers, and by slips. Propagating commences in the months of March and April, and in one year after the young trees begin their growth they are transplanted. This is done in trenches 2 or 3 feet deep and 2 feet wide, in which is placed well-rotted manure. The young trees are planted 6 or 7 feet apart in rows around the foot of mountains, or on mounds which separate the rice fields. The mulberry is grown in any part of Japan, but more extensively in the central provinces. The tree flourishes better in a sandy soil and near the banks of rivers. There are two different shapes in the leaves of the mulberry—oval and the shape of the chrysanthemum leaf.

THE SILK-WORM.

When the leaves of the mulberry begin to sprout the eggs of the silk-worm, which are deposited on pieces of paper, are brought out from a box, where they had been preserved in a cool place, and hung up in a warm room about 5 feet above the floor. The bottom edge of the paper upon which the eggs are laid should be occasionally inverted. Just before the eggs are hatched they will turn bluish in color. Caterpillars that are hatched earlier than twenty-four hours after being exposed to the required heat for hatching are regarded as poor in quality and unprofitable. To prevent too early hatching the eggs are covered with sheets of paper. The young worms are at first fed by sprinkling over them enough millet bran to cover them and the face of the paper. When the worms come out of the bran, they are swept with a soft feather brush on to a frame, and a few hours after fed with mulberry leaves cut to about the size of the worm and increased in size as they get older. When the worms are full-grown, the leaves should be fed to them whole. The worms should at first be fed eight times during twenty-four hours, and afterwards the number of times they are fed each day diminishes by one until they are about to go to rest to make cocoons, when four times a day will be sufficient. It requires about 2,000 pounds of mulberry leaves to feed the number of silk-worms hatched from one sheet of eggs. It is necessary to give the worms while feeding sufficient room on the frames, otherwise they will become diseased. The rule is to put one sheet of eggs, at the time they are hatched, on two frames, and, as the worms continue to grow, increase the number to eighty frames just before they go up to make their cocoons. The dung of the worms must be constantly removed. The way to do this is as follows: When the worms come out of the bran and on the top of the finely cut leaves at their first feeding, they are removed to new frames by sweeping them with a feather brush together with the leaves, and thus the dung remains on the old frames. When the cocoons are somewhat grown, a net should be spread over them and the leaves placed on the net; the worms will take to the fresh leaves, when they can be easily removed to another frame. As the worms take large quantities of food just before going to rest, they should be changed to clean frames once every day, and they should also be frequently changed in damp weather. The temperature of the room in which the worms are being fed is a most important consideration. It has been found that 80° F. during the day-time and 75° in the night-time is the proper temperature. Excessive dampness may be removed by charcoal fires and too great dryness of temperature by boiling water in the room. North wind and the sun shining direct on the worms are injurious. All rooms in which silk-worms are fed should face the south; trees should be planted on the east and west sides of the building, and the north side entirely closed.

At the time the worms go up to make cocoons they may be divided generally into two varieties—those having reddish bellies and those having bluish bellies. Nests upon which to deposit their cocoons are made of straw, rape stalks, or branches of trees having many small twigs. Those that are ready to go to the rests will stop eating and raise their heads and look round; these should immediately be put upon the frames prepared with the nests. About four days after going up they will finish making cocoons, and in two or three days after the cocoons should be removed from the frames. The best cocoons for making silk are those regular in shape, while those hollow in the center and irregular in shape do not make good silk.

SILK-WORM EGGS.

To obtain the best silk-worm seed great care should be observed in the selection of cocoons. The way to do this is to cut one side of a selected number of the cocoons with a very sharp knife and take out the caterpillars.

Should they be large and of a yellowish-red color, it is a sign that they are healthy and of good quality. Caterpillars of weak and inferior quality are glossless and not active. It is the same of the butterfly—they have a dull look and their wings are wrinkled. The butterfly emerges in about twenty days after the worm goes up to form the cocoon. The male butterfly generally comes out earlier than the female. They should be kept in a dark place, removed entirely from currents of air, and, as soon as the female comes out, they should be copulated. It is better to copulate male and female that come out the same day. It is very seldom that the butterfly comes out in the afternoon, generally in the forenoon between 3 and 4 o'clock and between 7 and 8 o'clock. The time of laying eggs is generally between 2 and 10 o'clock in the evening. Just before the butterfly comes out of the cocoon paper should be spread over them. They will take to the paper and copulate there. The time of copulation is about four or five hours, when the male butterfly should be picked out and thrown away, and the paper upon which the female butterfly remains should be shaken two or three times with both hands. They should then be removed to thick paper, 1 foot by 10 inches in size, and placed on the floor. The number of butterflies on each sheet will be one hundred and twenty to one hundred and thirty, weighing about one-fourth of a pound. The room should be slightly warmed by fire, and care should be taken that the eggs be laid equally over the paper. The number of eggs on each sheet will vary from forty-five to sixty thousand. As soon as the eggs are laid, the paper should be hung up near the ceiling of the room for a day or two, and then placed in a box and kept in a cool place, where the temperature is always under 60°. When severe cold weather sets in, the eggs should be taken from the box and dipped in cold water every morning for two or three days. After doing this the sheets of paper should be thoroughly dried and put back into the box. This will improve the quality of the eggs. In purchasing silk-worm eggs it is important to know how the worms were fed and treated. The hand should be gently rubbed over the paper to see if the eggs are firmly stuck to it. They should be large and of a glossy white purplish color. Inferior eggs are smaller in size, of a reddish or yellow color, and are laid irregularly on the paper. It is prohibited in Japan, by the silk-worm association, to sell diseased silk-worms.

TREATMENT OF COCOONS IN MAKING SILK.

It is necessary to destroy the butterfly in the cocoon from which silk is to be made. Before doing this the cocoons should be assorted and divided into three lots—(1) those that are composed of two or more caterpillars, (2) those strained by putrefaction of caterpillar, (3) those that have a small hole from which a small black maggot about one-fourth of an inch in size has come out, the maggot having killed the caterpillar. There are several methods of killing caterpillars. The most approved is to put the cocoons in a room in which there is a steam-pipe and place them opposite to it, so that the steam may penetrate the mass. After the caterpillars are killed, the cocoons are taken into the open air for about thirty minutes, and then returned to the room and put upon a swinging sheet, in order that they may dry quickly. After they are dry, they are put into sacks.

In making silk great care should be had in selecting the cocoons, so as to have the silk of an even fineness and color. The cocoons should be sprinkled with cold water the night before they are boiled. The object of boiling cocoons is to remove the waste silk and to find the end of the threads. To do this a kind of brush is used, made of stuff to which the waste silk will easily adhere and by which the ends of the threads will be loosened. When the proper number of threads are found, the cocoons are removed to another pan, and are ready for reeling. In reeling silk it is important to twist the thread well, and occasionally get a new end of thread. The method is to set a button made of porcelain on the top of the pan about 2 inches above the water. The ends of the silk are passed through a very small hole in the button and twisted well. The thread is hung on a hook made of glass, and is wound on a small reel, from which it is again wound in a larger one in a separate room. From the large reels the silk is taken and tied into bundles for weaving or transportation.

SILK MANUFACTURES IN JAPAN.

Until very recently the hand-loom of the most primitive pattern has been entirely in use in Japan in the manufacture of silk goods. At Kyoto two large factories have just been completed, where the most improved foreign machinery is employed. One of these factories is for reeling silk alone; the other for dyeing, weaving, and finishing. The latter has been erected at a cost of 500,000 yen, and was lately visited by the Emperor and Empress. A large number of the operatives in this factory are women and girls, receiving from 10 to 20 cents per day wages, while the most skilled of the male operatives receive less than 50 cents per day, working twelve hours.

With a moist climate during the greater part of the year, and therefore adapted to silk weaving; with an abundance of cheap labor and a soil unsurpassed for the growth of the mulberry, Japan is destined to become one of the greatest of the silk-producing countries of the world.

E. J. SMITHERS,
Consul.

UNITED STATES CONSULATE,
Hiogo, September 23, 1890.

Reduction of tobacco tariff in Guatemala.—I have the honor to inform the Department that the Government of Guatemala, in a decree published in the official paper, dated the 20th instant, reduces the import tax on tobacco from 55 cents per pound to 20 cents per pound on all tobacco coming into this Republic. As large quantities come from the United States, our merchants in this article should be notified at the earliest moment.—SAMUEL KIMBERLY, *Consul-General, Guatemala, November 21, 1890.*

PORK PRODUCT OF HUNGARY.

REPORT BY VICE-CONSUL GERSTER, OF BUDA-PESTH.

INTRODUCTORY.

In compliance with the Department's instructions, I beg leave to submit to you my report on the breeding of pigs and the pork products, as handled in my district.

According to the latest census of domestic animals, which took place in 1884, the stock of hogs in Hungary amounted to 4,803,639, whereas in 1870 they only amounted to 3,573,531. Of this number the superior breeds raised by the larger and middle proprietors numbered about 1,500,000, and the ordinary breeds raised by the small proprietors about 3,300,000.

That stock, valued according to the average price of the year 1884 (15.71 florins*) represented a value of 75,471,611 florins.

PRICES.

The average prices in the different parts of the country were at that time as follows: In the counties this side of the Danube (cisdanubian), 16.84 florins; beyond the Danube (transdanubian), 14.83 florins; this side the Theiss (cistibiscan), 15.33 florins; beyond the Theiss (transtibiscan), 16.23 florins; Transylvania, 14.13 florins.

The prices of the breeding animals belonging to the superior breeds were: Boars, 30 to 40 florins, or even 50 to 60 florins; sows, 25 to 30 florins; yearlings, 13 to 25 florins; sucking pigs, 5 to 9 florins.

The census, it may be observed, was made in autumn. The average prices were: Boars (of a good breed), 32.21 florins; sows, 24.25 florins; yearlings, 17.37 florins; piglings, 6.40 florins.

The most thorough study that has been made of the breeds of pigs in Hungary is that written by Mr. Eugene Rodizky, under the title "Studien über das Schwein." It appeared in 1872, and was published by the firm of Faesy & Frick, Vienna.

From this book I cite the following general data:

BREEDS.

Most widely diffused is the curly-haired pig. Of this race there are two divisions—the fleshy and the fat. The first is chiefly bred in the mountainous country in the north of Hungary; the latter in the counties beyond the Danube, in the country between the Danube and the Theiss, and in the counties along the Theiss.

The Mangolica breed of pigs is the result of crossing with the Shumadia breed, of Servia. Of this the best breeds are the Kis-Jenö, the Boros-Jenö, and the Szalonta, the Hungarian Mangolica ("swallow-bellied"), the Great Mangolica (with large ears and light-colored bristles), the Jankó breed, the Szunyog breed, the Essex and Berkshire breeds, of Magocsa, etc.

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* 1 florin=39.8 cents.

The principal pig-breeding counties are those of Arad, Baranya, Bihar, Bars, Krassó-Szörény, Temes, and Somogy.

The principal markets are Kőbánya, whose yearly traffic will be noticed presently; Kecskemet (80,000 annually), Bars (from 36,000 to 45,000), Nagy Varad (50,000 to 60,000), Szeged (80,000), Debreczen (60,000 to 80,000), Sopron (40,000 to 50,000), Arad (50,000), and Gyula (40,000 to 50,000).

ABATTOIRS.

In the detailed statistics of the pigs slaughtered at the abattoirs in 1889 the following are the largest figures:

Abattoirs.	Number.	Abattoirs.	Number.
Counties:		Counties—Continued.	
Bács-Bodrogh	7,932	Temes	16,564
Nyitra	7,517	Torontál	16,169
Pest*	32,357	Brassó	11,397
Pozsony	18,031	Szeben	8,379
Baranya	10,197	Towns:	
Fehér	9,063	Brassó	10,873
Somogy	6,956	Debreczen	9,948
Sopron	10,214	Kassa	4,580
Tolna	6,273	Komárom	2,085
Vas	8,449	Miskolcz	4,320
Zala	13,029	Nagy Szeben	5,272
Abaúj-Torna	21,707	Nagy Varad	7,545
Borsod	6,173	Pancsova	3,461
Heves†	8,046	Pecs	5,228
Békés	8,064	Pozsony	12,433
Bihar	10,902	Szeged	14,197
Csongrád	17,309	Szolnok	2,532
Hajdú	13,182		

*From Kecskemet no report was sent in. † Without Eger.

FATTENING.

A Mangolica hog, after being fattened for three months, furnished 135 kilograms, namely, 46.5 kilograms (34 per cent.) of bacon, 11.5 kilograms (8.5 per cent.) of grease, 53 kilograms (39.5 per cent.) flesh, and lost of the live weight 24 kilograms, or 17.5 per cent.

A hog of the Kis-Jenő breed gave 145 kilograms, namely, 58.5 kilograms (40 per cent.) of bacon, 10 kilograms (7.5 per cent.) of grease, 52.5 kilograms (36 per cent.) of flesh, and lost of the live weight 24 kilograms, or 16 per cent.

The expense of fattening amounted to about 25 per cent. of the gross receipts.

The following are annual averages of the several products of the slaughtered pigs per kilogram:

Articles.	1889.	1888.	1887.	1886.	1885.
	Kreutzers.	*Kreutzers.*	*Kreutzers.*	*Kreutzers.*	*Kreutzers.*
Meat (exclusive of bacon)	60	59	0.56	56	57
Lard	64	66	0.59	58	62
Bacon	60	61	0.54	55	59
Grease	62	62	0.55	53	59

The monthly averages for the year 1889 were as follows:

Months.	Meat.	Lard.	Bacon.	Grease.
	Kreutzers.	*Kreutzers.*	*Kreutzers.*	*Kreutzers.*
January	61	65	60	62
February	59	64	59	61
March	61	68	62	64
April	72	66	60	63
May	61	67	62	64
June	62	64	60	61
July	59	64	60	60
August	58	63	58	60
September	59	62	57	60
October	58	62	58	60
November	58	61	57	59
December	56	62	67	68

BREEDING.

With regard to the success with which different sorts are bred in different counties, we may quote the following from the sanitary reports for the year 1889:

In Abauj-Torna breeding stock was to be obtained at Hidvég-Ard, at Nagy Ida, at Alsó Lánczi, at Radvány (Count Ladislaus Károlyi's Mangolicas), and at Petöszinye (Count Alexander Forgách's Poland China breed).

On the Árvai estate the Yorkshire race is bred, which has been crossed with the less profitable Polish breed and has superseded it, so that every week from 150 to 200 animals are sent to the Austrian markets.

In Baranya the hog-fattening establishment at Pecs took in 11,724 animals during the year 1889. The principal breeders are the Archduke Albrecht, at his estate Bellye; the Bishop's farm; Ladislaus Szily, on his estate at St. Márton.

In Bars the breeding of hogs only covers the home consumption.

In Bereg the breeding flourishes. In the lower part of the county they breed the Mangolica, and in the upper part the Polish pig.

In Besztercze-Naszód they import from Bukovina cheap pigs, the result of a cross with the Yorkshire.

In Bihar pig breeding especially flourishes. For the most part they breed the native race, with light-colored bristles; but there is also a race with dark-colored bristles which is much esteemed. On the estates of the bishop and of the chapter they breed a race derived from tamed wild swine.

In Brassó, since the customs war with Roumania, the breeding of the Hungarian light-colored Mangolica has attained large dimensions.

In Csik they raise a rough mountain breed, which can not be properly fattened, whose only advantage is that it is satisfied with inferior food.

In Guyör the chief breeders are the bishop, on his estate at Pinyéd, and Charles Szevera, on his farm at Ponyvád. At the farm of Paul Auspitz, at Szent-Tános, the Yorkshire breed of pure blood is to be found. Its advantage is said to be that it is not subject to the erysipelas.

In Hajdú, in the year 1889, the stock amounted to 60,307 animals and 637 boars.

In Háromszék the raising of different sorts of mixed breeds and of the pure Szalonta and Mangolica races would progress most satisfactorily were it not for the ravages of the erysipelas year by year.

In Tász-Nagy Kun-Szolnok the light-haired breed is raised, and enables the cultivators to turn their crops of fodder to good account. Principal breeders are the Brothers Kohner, at Felsö Szászberke (annually 1,000 piglings); the Brothers Deutsch, at Puszta Fokoszun; Lewis Bischitz, at Tisza Abád; Alexander Iurenak, at Ujkút; Alexander Brill, at Pa. Kengyel.

In Kis Küküllő the excellent white Mangolica breed is everywhere to be found. The chief breeders are Count Eugene Haller, Count Árpád Bethlen, Count Stephen Eszterházy, Count Béldi.

In Kolozs a fine white-bristled breed is cultivated. The chief breeders are Count George Bánffy (Bonozhida), Joseph Szabó (Szászfenes), Count Julius Tezeki (Nagy Jklód), Baron Gabriel Josika (Szarvasfalva).

In Liptó Charles Mikó (Vervicz) and Géza Andaháza (Bölcsháza) raise the Poland-China breed, either pure blood or crossed with the Yorkshire or the Mangolica. The Poland-China breed have from seven to eight piglings in a litter, and are easily fattened. The Yorkshires have from nine to twelve in a litter, and, when crossed with the bristly race, furnish very remunerative specimens.

In Mármaros they breed the Polish race and the mountain variety of the bristly kind.

In Maros Torda, for the most part, the bristly-haired sort is raised. At Berestelke they are making the experiment of crossing with Berkshire boars.

In Nagy Küküllő the thorough-bred light-haired Mangolica pigs are raised. The purest blood is to be found in the hundreds of Kőhalom and Keresd. Large breeders are Count Béla Haller, at Rét; Count Francis Haller, at Tehér Egyháza; and Count Gabriel Bethlen, at Heresd. In the larger communes the stock of pigs amounts to 3,000 or 4,000 animals. In individual communes a yearly revenue of 25,000 florins may be shown to be derived from this source. An annual average of 15,000 animals are sold at the weekly markets of Medgyes. The Bayna cross (Berkshire crossed with Mangolica) is very fertile, and easily fattened. At Medgyes they fatten up annually about 1,200 animals from 160 to 180 kilograms in weight. These animals belong exclusively to the white or black Mangolica breed. The yearly revenue amounts to from 60,000 to 70,000 florins.

In Nyitra there is only one large breeding establishment, that of Count Aloys Károlyi, at his farm of Ondrohó, who breeds every year 600 to 700 white Mangolicas.

In Pozsony Molinie, an English cultivator breeds Yorkshire, Berkshire, and Essex pigs on a farm of 60 acres. When twelve weeks old they come into the hands of the fattener, and after twelve weeks more are complete yearlings, and are sold at an average price of 52 kreutzers per kilogram of live weight.

In Sáros the pork butchers of Kassa Ujfalú bought 10,973 of these animals and sent the cured flesh to foreign countries.

In Somogy several large proprietors are beginning to cross the Poland-China race.

In Sopron the most importance is attributed to English blood. This is the result of the vicinity of Vienna.

In Szilágy both white and black bellied pigs are bred to great advantage.

In Szolnok-Doboka the inferior kind of animals hitherto bred by the Roumanian peasants is being driven out of the field and its place taken by the light-haired and swallow-bellied variety of the native bristly race.

In Torontál, on the Zsombolya estate, the sorted-out sows and boars, after being fattened for four months, attain a weight of from 250 to 280 kilograms.

Veszprém is the original home of the Bakony race, which, however, is by this time hardly to be found pure. In its place they breed the Kis Jenő race.

HOG CENSUS FOR THE SEVERAL COUNTRIES.

According to the census of 1880, there were in Hungary (exclusive of Fiume) 4,803,639 swine; to every 100 square kilometers, 1,717 animals; to every 1,000 souls, 331 animals. In Croatia-Slavonia there were 468,093 animals; to every 100 square kilometers, 1,100 animals; to every 1,000 souls, 231 animals.

Census according to continents.

Continents.	Number to every 1,000 inhabitants.	Total number.
Europe	134	44,719,000
Asia	1	519,000
Africa	2	304,000
North America	707	51,530,000
South America	44	1,388,000
Australia	296	1,228,000

Census according to countries.

Countries.	Number to every 1,000 inhabitants.	Total number.
Hungarian Kingdom	318	5,544,000
Austria	123	2,722,000
Bosnia	363	430,000
Germany	197	9,206,000
France	156	5,979,000
Roumania	430	3,816,000
Servia	576	1,068,000
Bulgaria	149	300,000
Denmark	359	771,000
Russia	120	9,362,000
Portugal	226	971,000
North America	817	50,302,000
Canada	268	1,208,000
Australia	292	1,074,000
Italy	41	1,164,000
Switzerland	118	335,000
Belgium	117	646,000
Holland	111	490,000
England	102	3,816,000
Spain	70	1,163,000
Greece	88	175,000

Traffic in swine in Hungary.

Years.	Imports.		Exports.	
	Number.	Value.	Number.	Value.
		Florins.		*Florins.*
1868-'74	580,225	13,422,761	719,129	37,428,096
1882	106,285	5,308,580	619,406	43,300,895
1883	334,025	16,567,830	636,557	44,390,705
1884	159,938	7,021,296	606,086	35,125,735
1885	174.777	6,619,002	670,684	32.962,160
1886	164,762	4,519,865	891,536	43,870,466
1887	146,471	5,366,003	779,342	38,117,729
1888	199,132	7,155,866	543,308	31,124,918
1889	204,570	7,978,000	605,607	37,844,000

AUSTRO-GERMANIC TRADE.

Germany, which, after Austria, is the chief consumer of our swine, diminishes its imports year by year. In 1881 its import was about 1,000,000 net, while in 1888 its import had dimished to 364,000, and its export had risen to 392,000. In the interest of its own breeders it imposed an import duty of 6 marks per animal and established store stations under the pretence of keeping out murrain.

The foreign trade in swine of Austria-Hungary was as follows:

Year.	Imports.	Exports.
1886	333,878	430,280
1887	224,295	218,735
1888	210,053	168,880

FIRST HUNGARIAN FATTENING COMPANY.

The following are the statistics of the business of the first Hungarian pig-fattening company established at Kőbánya:

Number of pigs received.

Year.	Hungarian.	Servian.	Roumanian.	Total.
1875–'79 (average)	290,924	123,678	57,128	471,730
1880–'84 (average)	389,941	83,797	55,187	528,925
1885	419,380	78,887	14,483	512,750
1886	401,721	89,684	29,394	520,799
1887	362,757	70,740	15,374	448,871
1888	392,164	83,888	21,414	497,466
1889	451,204	144,904	10,355	606,463

Number of pigs sent to Vienna for home consumption.

Year.	Hungarian.	Servian.	Roumanian.
1875–'79 (average)	471,550	148,618	165,008
1880–'84 (average)	490,122	167,285	120,911
1885	466,502	186,638	125,541
1886	556,241	205,312	106,187
1887	436,957	210,898	87,656
1888	415,573	219,186	93,213
1889	511,608	194,761	98,075

Comparing the numbers for 1889 with the average for 1875–'79, we see that Hungarian pigs have risen 55.09 per cent.; Servian, 17.17 per cent.; while Roumanian pigs have diminished by 81.87 per cent.

Table showing the destination of pigs sent out.

To—	1888.	1889.
Buda-Pesth	164,607	146,249
The environs of Buda-Pesth	26,340	28,950
The upper counties	28,239	19,562
Vienna	93,213	98,075
Wiener-Neustadt	....	38,757
Bohemia	31,080	77,603
Via Bodenbach	29,344	39,777
Via Oderberg	38,220	48,095
Via Zsolna	....	20,935
Italy	4,322	2,363
Southern Germany	268	[illegible]
Total	415,573	511,608

The traffic in swine at foreign markets was as follows:

To—	1884.	1885.	1886.	1887.	1888.
Vienna:					
Heavy	80,166	84,222	74,927	67,614	59,421
Middling	100,796	103,600	121,071	112,298	114,193
Yearlings	167,863	173,066	127,618	241,566	296,297
Total	348,825	360,888	323,612	421,478	469,911
Berlin:					
German	....	....	....	....	555,018
Hungarian	....	....	....	....	16,309
Dresden:					
German	....	....	43,862	47,490	53,820
Hungarian	....	....	12,471	7,284	5,905
Paris	....	....	323,239	316,900	377,600

Among the exports of Germany pigs figure for 12,400,000 florins; among the exports of the United States bacon figures for 57,100,000 and lard for 47,800,000 florins; among those of Austria-Hungary pigs figure for 11,000,000 florins; and among those of Denmark pigs for 8,800,000 florins and pork for 10,300,000 florins.

LIVING ANIMALS AND CUT-UP MEAT.

In the statistics published in the year 1889 the whole import of live animals and of meat amounted to 447,870,000 florins, of which 271,620,000 florins consisted of live animals and only 176,250,000 florins of meat, etc. Up to that time we find set down the whole import as 472,590,000 florins, of which only 224,240,000 florins consisted of live animals, while dead meat and the like figured for 248,340,000 florins. This shows that the trade in dead meat continually gains ground. In Great Britain, during the year 1887, 127,300,000 florins was the value of the imported meat, which in 1888 had risen to 167,890,000 florins; in France, 11,110,000 florins in 1887 and 20,800,000 florins in 1888; in Belgium, 10,080,000 florins in 1886 and 19,740,000 florins in 1887; in Germany, 12,400,000 florins in 1887 and 18,640,000 florins in 1888. In the last-named country the value of the imported live animals has gone down from 80,970,000 florins to 35,020,000 florins.

Traffic in swine products in Hungary.

Articles.	Imports.		Experts.	
	Quantity.	Value.	Quantity.	Value.
Fresh meat:	*100 kilos.*	*Florins.*	*100 kilos.*	*Florins.*
1882	3,055	122,000	5,787	347,000
1883	2,497	100,000	5,805	348,000
1884	3,081	181,000	7,666	422,000
1885	4,595	204,000	10,328	549,000
1886	3,883	210,000	11,666	615,000
1887	3,584	161,000	14,104	683,000
1888	4,199	189,000	12,269	552,000
1889	1,821	82,000	16,787	755,000
Prepared meat:				
1882	932	39,000	987	53,000
1883	484	20,000	563	30,000
1884	1,031	46,000	471	23,000
1885	1,356	60,000	463	23,000
1886	1,309	95,000	517	40,000
1887	1,202	72,000	985	59,000
1888	1,385	104,000	538	32,000
1889	1,462	110,000	465	28,000

Traffic in swine products in Hungary—Continued.

Articles.	Imports.		Exports.	
	Quantity.	Value.	Quantity.	Value.
Lard:	*100 kilos.*	*Florins.*	*100 kilos.*	*Florins.*
1882	7,144	372,000	23,860	1,[illegible],000
1883	4,683	244,000	38,794	2,095,000
1884	2,819	129,000	45,115	2,146,000
1885	2,180	85,000	52,954	2,199,000
1886	2,891	120,000	44,844	2,202,000
1887	3,127	138,000	43,100	2,039,000
1888	4,618	219,000	40,929	2,039,000
1889	3,474	170,000	53,714	2,730,000
Bacon:				
1882	1,300	57,000	16,599	764,000
1883	895	39,000	16,802	773,000
1884	1,312	60,000	19,192	875,000
1885	1,363	55,000	20,880	866,000
1886	1,748	70,000	23,839	1,004,000
1887	1,639	68,000	24,110	1,054,000
1888	2,003	92,000	19,949	951,000
1889	1,407	65,000	23,955	1,157,000
Hams:				
1882	362	31,000	33	3,000
1883	802	76,000	167	14,000
1884	1,360	136,000	329	28,000
1885	2,116	212,000	316	25,000
1886	2,348	229,000	352	26,000
1887	3,237	308,000	321	23,000
1888	4,329	433,000	287	24,000
1889	4,781	428,000	276	23,000
Sausages:				
1882	922	63,000	2,023	172,000
1883	404	48,000	148	13,000
1884	1,357	136,000	134	11,000
1885	1,578	158,000	190	15,000
1886	1,541	140,000	202	15,000
1887	1,884	151,000	229	16,000
1888	2,102	210,000	237	20,000
1889	1,954	195,000	233	20,000
Bristles:				
1882	1,441	288,000	259	65,000
1883	1,463	293,000	528	131,000
1884	1,383	276,000	1,714	429,000
1885	1,382	300,000	464	120,000
1886	1,601	352,000	651	182,000
1887	1,872	33,000	380	97,000
1888	1,742	382,000	319	86,000
1889	....	....	....	....

BREEDING EXPERIMENTS.

The first experiments in breeding were made in 1833 at Kis Jenő with Servian Milos pigs, which belonged to the light-colored bristly race. The dark-bristled race, for the most part, had their origin in Syrmium; in the first place they came from Szaboles.

Our breeders have by this time made such progress that our fat-producing pigs can compete with the like pigs all over the world, and now the Serbs themselves often come to us for breeding animals. Besides the bristly fat-producing pigs, the Hungarian breeders raise flesh-producing pigs; such are the mountain pig, the old Bakony breed, and the Szalonta breed. The bristly fat-producing swine are divided into the light-colored, the black, the swallow-colored, and the wild boar colored.

Of the flesh-producing kinds, the mountain pig is at home in the northern Carputhians, especially in the counties of Árva, Liptó, and Szepes. The Bakony breed is almost extinct. The Szalonta breed is rare, even in Szalonta. The bristly pig forms about nine-tenths of the stock of the county.

The flesh-producing pigs are in the hands of the small proprietors and do not to any extent form an object of trade on a large scale. The breeder rears his animals till they are twelve to fourteen months old and then sells them to the fatteners.

The first Kőbánya fattening company started in 1881 with a capital of 500,000 florins, and developed itself, owing to the establishment at that place of the quarantine for pigs. From 1880 to 1885 there were brought to Kőbánya 2,460,669 animals, of the value of 117,593,559 florins. These consumed 4,097,210 meter centners of maize and barley, to the value of 29,741,150 florins. There were sold from that place 2,450,601 animals, of the value of 153,346,435 florins. Of these there were exported to foreign countries 1,002,900 animals, of the value of 64,542,385 florins.

During the years between 1880 and 1885 the price of fattened Hungarian pigs was about 53.9 florins per 100 kilograms, the highest price (1882) being 59.9 florins and the lowest (1884) 48 florins. The average price during the above-mentioned years was 53 florins per 100 kilograms.

The following table refers to the breeding establishment at Kis Bér, and speaks of the system of feeding there:

Food for breeding sows.

Period of time.	Maize.	Barley.	Rye bran.	Whey.	Turnips.	Potatoes.
From December 1 to January 31	0.05	....	0.5	2	1	2
From February 1 to April 30	0.5	0.5	1	2	1	2
From May 1 to May 31	0.5	0.5	1	2	....	....

NOTE.—From June 1 to September 30 pasturing and, in case of necessity, artificial food as supplement.

Order of feeding.—At 6 a. m. half of the groats, bran, potatoes, and turnips; before noon, the turnips; at 4 p. m., half of the groats, potatoes, and bran. Fresh water stands at their disposal in a trough in the feeding place. Sucking pigs gradually *ad libitum.*

Age.	Maize.	Barley.	Groats.	Potatoes.
3 to 5 months*	0.2	1	0.3	....
6 to 12 months	0.3	0.2	0.2	3

*Also pasturage.

The groats and the bran are to be given soaked, the potatoes broken, and the turnips raw. During the time of suckling the breeding sows have a supplement of barley or of maize, the barley being, if circumstances render it advisable, either wholly or in part replaced by maize; pasturage as far as possible.

The Hungarian bristly pig, one of the best fat-producing breeds in the world, does not develop very fast; but it does develop, even under unfavorable conditions. It traverses bogs, fallows, stubbles, and distant woods in search of food, passes the winter in the open air without harm, and, when taken up for fattening, the whole drove equally profits by the food and turns it to good account.

But the one-sided production of fat, especially in face of the American competition, is found not to answer the designed end, and to be then only profitable if the fertile flesh-producing breed is also reared. For this purpose the Veszprém pig is very suitable, which has to be crossed with the large-eared breed homogeneous with it, but of superior quality; also, the Szalonta breed of Kisbér, of which, even in the young days, the boar weighs 117 kilograms and the sow 90 kilograms. Next comes the pig of the upper country, which is akin to the Polish breed. It is with great caution that we should undertake the breeding of the foreign flesh-producing kinds. A certain measure of success has been attained with the Berkshire breed; but this we only keep where it is not maize that has to be turned to account, but soft or liquid waste (refuse offal) of a nutritious character. Maize makes pigs of all breeds fat producing. Such nutritious refuse is given to the pigs only where cream is manipulated; consequently, the breeding of such flesh-producing, fast-growing pigs is found naturally associated with dairy farming. Generally speaking, the more intensive cultivation, but especially dairy farming, will continually tend to give this direction to pig breeding. It may be hoped that, with the assistance of dairy farming and in order to make profitable use of dairy refuse, the breeding of flesh-producing pigs may become gradually more general, and thus lead gradually to a restocking of our markets.

The breeding of pigs is one of the most remunerative branches of Hungarian husbandry, as every thing requisite to their breeding and fattening is present—excellent and abundant fodder, extensive pastures, oak forests, etc.

Of the pigs thus bred, by far the greater part find their way to Kőbánya. From thence they are either exported alive to Austria and Germany or they are fattened up for the purpose of being turned into the several sorts of prepared flesh.

HUNGARIAN BACON.

The preparation of the flesh of these animals is excellently represented by the Hungarian fabrication of "salami," which enjoys a high reputation. On the other hand, the preparation of salted and smoked meats has not hitherto been sufficiently successful, owing to the fact that the Hungarian pigs are reared rather to produce fat than flesh. There is a great opening for any one who would strike out a new line and improve the quality of the meat as to its flavor and keeping qualities. Of the pigs that arrive at Kőbánya, those that are intended to be worked up are prepared, some in the establishment itself, but the greater part are killed and prepared at Buda-Pesth. The first part of the winter season serves for preparation of singed bacon, grease, and salami, while the side bacon is dried in the air or smoked. Further, *laiding* bacon—bacon that is eaten raw with bread and "paprika" (Hungarian red pepper)—bacon, and lard are prepared all the year round. The country bacon (that prepared in the provinces) is only prepared in the winter, and comes into the market as singed bacon. The sides of bacon show the two halves of the pig, with the head and belly, but without the jaws and bones. The principal consumers of this sort of bacon are the country people, especially at the time of harvest. This country bacon is furnished not only at Kőbánya, but also in the chief towns of the great Hungarian Plain, of the Banat, and Transylvania.

By flitch bacon we mean those regularly shaped oblong pieces of bacon cut from the side, without the head, belly, or bones, in weight from 20 to 25 kilograms. This sort of bacon, whether dried in the air or smoked, together with the above-mentioned sorts, is exclusively prepared at Buda-Pesth and Kőbánya, and used as an article of general consumption.

Owing to the strict application of sanitary regulations, all the bacon prepared in Hungary is completely free from measles and trichina. This is a point which is to be especially taken into consideration in favor of Hungarian bacon, and is, in fact, taken into consideration by the purchasers.

HUNGARIAN LARD.

Among lards, the first place is taken by the lard prepared at Buda-Pesth, which enjoys a European reputation under the title "Buda-Pesth town lard." This is of a pure white color, mixed to firm consistence, and free from all extraneous substances or dregs. It is a well-flavored kind of lard, which comes regularly into commerce in oaken casks of from 60 to 180 kilograms. The lard that is prepared in the provinces and sold under the title "country lard" is also an unadulterated article; but, for the most part, it is not properly worked up and is consequently grainy. This country lard is generally prepared during the winter months, conjointly with the bacon, and is then generally prepared in the Hungarian villages of the great plain and the Rouman villages of Transylvania, and passes through Buda-Pesth into general commerce. We must further notice the grease, unfit for human food, which is prepared at Kőbánya from the animals condemned by the sanitary authorities. After this has been denaturalized in the regular way, so as to prevent its being used for food, it is used for manufacturing purposes and, especially, in the making of soap. Grease, salted, is produced in suitable quantitity, and is used, partly fresh, partly stale, for cooking, for producing lard, and for manufacturing purposes. The stale grease that has turned yellow is used as an article of food by the Slavonic population in Hungary and in Galicia, where it is preferred to the fresh.

PORK BUTCHERS.

The pigs are manipulated partly by regular pork butchers, of whom, according to the latest statistics, there are in Hungary thirty-two hundred and ninety-two, employing seventeen hundred and sixty-five assistants; partly by persons who in the country kill pigs in the winter, at Szeged, Debreczen, Kecskemet, Békés Csaba, Békés Gyula, Hóa-mező-Vásárhely, Temesvár, Ujvidék, Pancsova, Semlin, and lastly in Transylvania.

At Buda-Pesth and Kőbánya there are three hundred and fourteen master pork butchers, with five hundred and eight assistants, who prepare for commerce the Buda-Pesth town lard and the several kinds of bacon. The production of bacon and lard in large masses, as is the case in the large slaughtering establishments in America (at Chicago, Cincinnati, etc.), has not yet come into fashion in Hungary; but a movement for starting such establishments has already begun, and there is no doubt that, if furnished with sufficient capital, they would do very well and attain a vast development.

SANITARY RESTRICTIONS.

As regards the quality of the products of the swine that are offered for sale in the market of Buda-Pesth, very strict rules are enforced by the authorities of the Buda-Pesth Exchange. According to these rules the Buda-Pesth town lard is required to be pure, white, firm, and free from dregs and of good taste. The flitch, or side bacon, according to the same rules, has to be cut into four-cornered pieces, scalded, and free from bone, head, or belly.

With regard to this same flitch, or side-bacon, the producers of Buda-Pesth have latterly taken the American and French bacon as a model, and furnish pieces cut out of the back without any part of the head or belly, which must tend to increase the general favor which the Hungarian bacon already enjoys. It is owing to the strict enforcement of these rules and to the honesty of the Buda-Pesth producers that their goods enjoy such an excellent reputation, and that their lard and different sorts of bacon are prized higher than those prepared in Austria.

Latterly, the American products began to find their way into Hungary, until they were stopped by an import duty of 16 florins in gold on every 100 kilograms. The foreign markets, however, have been occupied against the Hungarian products by the American goods, owing to their low price and the customs regulations at present in force.

The prices of Hungarian lard and bacon have sunk during the last few years, owing, partly, to the unfavorable state of business, partly to the extension of pig-breeding and the low price of fodder.

METHOD OF FATTENING.

In the drove of Kis Jenő there are 700 brood sows; the animals are of the light-bristled breed, of a light color, with curly hair, and of the middle size. The sows pig for the first time at the end of the second year, in the month of February, with six piglings, on an average, to each litter. The boars sell for 50 florins apiece, the sows for 40 florins.

The swine of Mezőhegyes are of the light-bristled race. The boar is 90 centimeters high the sow 91. They have small heads, long, deep bodies; their hair is soft, curly, thick, and of a light color. Their bones are fine and yet sufficiently strong. The sows are put to the boar at the end of September, about five or six sows being reckoned to each boar. On an average, five piglings are left with the mother, and are weaned when ten weeks old. Prices of boars, 60 florins; of sows, 50 florins; castrated half-year-old pigs, per couple, 75 to 80 florins. They are littered between the 20th of January and the 20th of February. They begin to feed them on February 10 with 0.5 kilogram of barley, which is gradually increased, up to February 28, to 0.15 kilogram; from March 1 to 31, gradually increased to 0.40 kilogram; from April 1 to 10, gradually increased to 0.45 kilogram.

The food of the weaned pigs, from April 10 to 30, is 0.40 kilogram of barley, 0.20 kilogram of oats; in May, 0.45 kilogram of barley and 0.25 kilogram of oats; from June 1 to July 18, 0.45 kilogram of barley, 0.25 kilogram of oats, and pasture; from July 19 to 20, 0.25 kilogram of oats and transition to mere pasture; from July 21 to September 20, stubble pasture; from September 20 to 30, transition to winter feeding of 0.50 kilometer of refuse barley.

FEEDING OF BREEDING ANIMALS.

Pigs.—October 1 to 31, 0.60 kilogram of refuse barley; November 1 to 30, 1.50 kilograms of refuse maize in the ear; December 1 to 31, 1.50 kilograms of refuse maize in the ear and 1 kilogram of turnips.

Yearlings.—January 1 to 31, 1 kilogram of maize and 1 kilogram of turnips; February 1 to March 31, 1.50 kilograms of maize and 1 kilogram of turnips; April 1 to September 30, one-fifth of an acre (Hungarian) of pasture; October 1 to 31, 0.50 kilogram of refuse barley; November 1 to 30, 1 kilogram of refuse maize in the ear and 1 kilogram of turnips; December 1 to 31, 1.50 kilograms of shelled maize.

Breeding Boars.—January 1 to 31, 1.50 kilograms of shelled maize and 1 kilogram of turnips; February and March, 1.25 kilograms of shelled maize and 1 kilogram of turnips; April to May 15, 1 kilogram of shelled maize and one-fifth of an acre of pasture; May 16 to August 31, one-fifth of an acre of pasture; breeding season, September to October, 1 kilogram of oats and one-fifth of an acre of pasture; November, 1.50 kilograms of refuse maize in the ear and 1 to 2 kilograms of turnips; December, 1.75 kilograms of refuse maize in the ear and 1 to 2 kilograms of turnips.

Brood sows.—January (during pigging), 1.25 kilograms of barley and maize groats and 1 kilogram of maize; February 1 to April 16 (weaning time), 1.50 kilograms of barley and maize groats and 1 kilogram of maize; April 17 to May 20, 0.50 kilogram of maize; May 21 to September 30, 1 acre of pasture; October, 1.50 kilograms of refuse barley or maize and 1 to 2 kilograms of turnips and one-fifth of an acre of pasture; November and December, 2 kilograms of refuse barley or maize and 1 to 2 kilograms of turnips.

BRISTLY PIGS.

From Bartholomew Balazsházy's (of Ködömbi) drove a pair (for breeding) sold at 100 florins; at from one to one and one-half years old, the pair, 130 florins. This drove gained a first-class certificate in 1885.

Koloman Tisza's breed, at Csegöd, is distinguished by a finely outlined head, a sufficiently broad and strong neck, a well-curved back; long, rounded loins; long, deep, and roomy body; thick, fine, curly hair. Breeding animals sold, when one and one-half years old, the boars for 70 florins and the sows for 60 florins.

Count Frederick Wenckheim's drove, at Székudvar, was founded fifty years ago, with the Milos breed of Mangolica sows crossed with light-colored bristly boars from celebrated breeders. Of their descedants, a pair a year old are sold from 60 to 80 florins; of old swine a pair cost from 78 to 122 florins, a one-year-old pig for breeding for 50 florins apiece.

From the drove of Kendi Lóna, a pair are sold at from 50 to 60 florins, boars for breeding at 50 florins apiece, and sows at 40 florins apiece when one year old.

Among the black and swallow-colored pigs are to be mentioned the drove of Esztár, in the county of Bihar, which belongs to Szunyog-Szabolcs. Boars are sold at 110 to 130 florins per pair and sows at 100 to 110 florins; those of Bihar-Dioszegi, one to one and a half year old pigs for breeding, 80 to 100 florins per pair; gelded eight-month-old piglings, 30 to 45 florins; and gelded pigs one to one and a half years old, 60 to 75 florins.

Of the flesh-producing breeds at Kisbér, the old Szalonta breed has greatly improved. The diameter of the lower jaw and the skull has improved, and the depth increased. Breeding boars were sold in 1879 at 100 florins apiece, brood sows at 70 florins apiece. The live weight of a fully developed breeding boar is 180 to 200 kilograms; of a brood sow, 150 to 170 kilograms; of a boar pig at one year old—average, 117 kilograms; highest weight, 145 kilograms; one-year-old sow pig—average weight, 90 kilograms; highest weight, 109 kilograms. Weight, when weaned: Boar piglings, 14.09 kilograms; sow piglings, 14 kilograms. Farrowing results: 49.5 to 51.15 per cent. boars; 48.85 to 50.5 per cent. sows; half-year-old boars, 35 to 60 florins; one-year-old boars, 60 to 80 florins. Fattened animals realized 47 to 50 kreutzers per kilogram of live weight.

We have seen above the course of feeding followed.

English pigs are bred at Puszta Lomod, in the county of Pest, by Edward Mack; Yorkshires at Eveske, county of Nográd, by Gustavus Olszenszki; Suffolks by Alfred Rosenthal, importer, at Buda-Pesth, of Yorkshires and Berkshires.

RESULT OF FATTENING.

The farm of Kis Jenő, the produce of February, 1884: March 4, 1885, 25 animals driven in; weight per pair, 139.4 kilograms; in all, 17,420 kilograms. Up to April 4 there died 1 animal (60 kilograms), there remained 249 animals; total weight, 19,400 kilograms (with the dead one included, 19,460 kilograms); weight per pair, 155.7 kilograms. Up to April 4 they consumed 7,515 kilograms of shelled maize and 2,750 kilograms of barley groats, that is, in all 10,265 kilograms of food (per diem and per pair, 2.7 kilograms), after which the increase of weight per pair was 16.3 kilograms; in all, 2,040 kilograms. According to this 100 kilograms of food produced an increase of weight of 19.8 kilograms.

Up to May 4 there were weighed 249 animals, whose weight was 22,830 kilograms; to this the weight of the one which died before April 4 (whose weight was 60 kilograms) is to be added, making a total of 22,890 kilograms, or 183.2 kilograms per pair. Up to May 4 they consumed 16,797 kilograms of shelled maize and 725 kilograms of barley groats; in all 17,522 kilograms of food (per diem and per pair, 4.7 kilograms); after which the increase of weight (per pair, 27.5 kilograms) was in all 3,436 kilograms. Accordingly, 100 kilograms of food produced an increase of weight of 19.6 kilograms.

Up to June 4 1 animal was sold (whose weight was 50 kilograms); to this is to be added the animal that died before April 4 (whose weight was 60 kilograms); there remained 248 animals. Their weight was 28,460 kilograms; in all, therefore, 28,570 kilograms (per pair, 228.6 kilograms). Up to June 4 they consumed 14,005 kilograms of shelled maize, 7,928 kilograms of maize groats, and 2,714 kilograms of barley groats; in all, 24,647 kilograms of food (per diem and per pair, 7.6 kilograms), after which the increase of weight (per pair, 45.4 kilograms) was in all 5,680 kilograms. Accordingly, 100 kilograms of food produced an increase of weight of 23 kilograms.

Up to August 27 3 animals were sold (whose weight was 450 kilograms); to these are to be added the 2 animals sold before June 4 (whose weight was 110 kilograms). On August 27 the 245 animals that remained were weighed and amounted to 43,545 kilograms; in all, therefore, 44,075 kilograms. Up to August 27 they consumed 15,500 kilograms of shelled maize, 43,999 kilograms of maize groats, and 14,971 kilograms of barley groats; in all, 74,470 kilograms of food; after which the increase of weight was in all 15,505 kilograms. Accordingly, 100 kilograms of food produced an increase of weight of 20.8 kilograms.

According to this the pigs, during the whole time of fattening, showed for every 100 kilograms of food consumed an increase of weight of 21 kilograms. Now, these pigs were with difficulty accustomed to the climatic conditions of this place and the change in the manner of life, and on this account they pined away for some time at the beginning of the fattening process.

We are able to give details with regard to the results of fattening at thirty-three establishments similar to the above. Here follow the principal results:

Establishments.	Number of animals.	Weight of animals per pair at commencement.	Period of experiment.	Food consumed.	Result obtained.	Result obtained by 100 kilograms of food.
		Kilograms.	*Days.*	*Kilograms.*	*Kilograms.*	*Kilograms.*
Count Max Teleky, at Hosszúfalva	146	97.9	169	36,323	7,617	21.7
Marquis Pallavicini	100	107.8	168	28,412	5,964	21.6
Louis and Eugene Döry	100	124.8	171	26,283	5,543	21.6
Otto R. Biedermann	180	115.9	171	47,923	9,867	21.4
Barth. Balázshazy	100	128.6	163	25,243	5,050	21.3
Edmund Gajári	170	135.9	148	30,030	6,510	21.3
Farm of Báttaszék	100	106.9	173	27,816	5,760	21.2
Mezőhegyes	300	160.1	149	60,393	11,978	21.1
Prince Sulkovszky	100	126.6	174	30,055	6,060	21.1
Archduke Joseph	250	139.4	177	74,470	15,505	21
Count Max Teleky's heirs	150	107.7	169	40,436	8,390	21
Count Max Teleky	150	127.2	168	41,092	8,424	20.9
Michael Vermes	100	136.2	176	28,383	5,795	20.9
Freystädler William	170	124.4	178	47,882	10,220	20.8
Alexander Kruspér	110	113.7	175	31,944	6,346	20.7
Farm of Lakocsa	100	110.2	174	25,838	5,170	20.7
Count Ervin Schönborn	100	107.7	162	21,156	4,330	20.7
Brothers Weiss	170	147.3	151	31,241	6,479	20.6
Prince Lukowsky	100	134.2	174	27,037	5,305	20.6
Count Ladislaus Károlyi	100	148.3	174	27,583	5,198	20.5
Béla Csillag	100	152.2	174	23,848	4,685	20.5
Count Julius Szapáry	100	112.8	177	27,220	5,409	20.4
Count Tasilo Festetich	100	131.5	154	27,538	5,217	20.3
Baron Lewis Sennyei	170	124.8	174	45,152	9,322	20.3
Count Fr. Wenckheim	150	175.7	184	48,550	9,825	20.2
Senr. Count Coloman Almássy	200	138.3	170	50,564	9,711	20.2
Brothers Kohner	170	146.2	174	49,557	10,263	20.1
Szunyogh Szabolcs	100	154.4	163	22,646	4,292	20.1
Julius Gerst	100	143.1	178	28,192	5,390	19.9
Paul Moritz	120	129.4	178	31,111	5,882	19.7
Francis Lovassy	120	143.4	178	31,549	5,975	19.7
Count Francis Zichy	100	165.8	167	25,293	4,920	19.5
Count Fr. Wenkheim	150	169.2	184	47,517	8,888	19.1

CONSUMPTION OF THE VARIOUS PRODUCTS.

Lastly, we would mention a few data with regard to the method of slaughtering pigs practiced in this country. It is well known that the blood and the tripes are used in the making of sausages. The hams are sometimes prepared by quick smoking, salt and saltpeter being first rubbed in, and on occasions can be so prepared in forty-eight hours. When prepared at home, the hams are pickled in salt and saltpeter for six weeks and then smoked for four weeks; in the case of the hindmost ham, for one week less. The flesh out of the fat parts is cleaned and used for the making of salami. The sides are in like manner smoked. Factories of conserved meat are also established. The bacon is partly melted down, and comes into commerce as lard in barrels holding 2 meter centners each; partly it is sold raw or salted in whole flitches, smoked and also cured with paprika (Hungarian red pepper). The grease and the fat of the belly melted down come into commerce. The skin is stripped off the sides of bacon and boiled, and is so sold, or is used in the making of sausages. Pig-skin is an article much in request among the manufacturers of fancy goods. The bristles of the back are used by the makers of brushes; the rest of the curly hair is used to stuff saddles and furniture. The pig's stomach, when cleaned and stuffed with blood and meat, becomes an article of commerce under the name of "pigs' cheese." Another product much in request is the "Debreczen sausage.” The gravies obtained from the melted bacon are a favorite article of food with the lower classes, while the refuse so obtained is used in the manufacture of soap.

The manure from the pigs is of such value for fertilizing sandy soils that a separate railway (the Buda-Pesth-Lajosmizse) has actually been constructed for its carriage, and the landed proprietors of that neighborhood have engaged to take and pay for at least eight thousand trucks of that manure every year from the Kőbánya fattening establishment.

The excellence of the pickled hands of pork at Prague and at Kassa is due to the quality of the pickle and the manner in which they are prepared.

While the Italian pigs are excellent for salami, but not for hams, the Mangolica pig, on the other hand, produces excellent hams. For the production of fat the pigs require to be fed on maize and mast, whereas feeding them on potatoes and wash does not result in the production of so much fat.

Only wood can be used in smoking the meat, and only, too, such wood as does not give too great a flame. Brush-wood is used for this purpose, and especially branches of juniper, which give the meat a good flavor. They also use tan and sawdust. The hams cured at home have a better flavor and are pinker in color than those pickled in saltpeter and smoked quickly, which have a duller color. The best hams are those smoked in cool smoking rooms. In salting them care has to be taken that the bare bone does not stand out of the pickle, as in that case the ham gets a rank flavor. They turn the hams every day and pour fresh wine over them.

Up to the present time no large undertaking has been started for the preparation of the products of the swine.

LOUIS GERSTER,
Vice-Consul.

UNITED STATES CONSULATE,
Buda-Pesth, September 23, 1890.

THE NEW TARIFF OF ECUADOR.

REPORT BY CONSUL-GENERAL SORSBY, OF GUAYAQUIL.

I have the honor to transmit herewith a translation of the tariff measure adopted by the last session of the Congress, which was signed by the President of Ecuador on August 20, 1890, and is to go into effect on January 1, 1891, accompanied by the rate of export duty on the staple articles of export.

Table showing import duties per kilogram.

Articles.	Duty.	Articles.	Duty.
Almanacs	Free.	Bridges, iron, and implements	Free.
Animals, live	Free.	Bran	$0.01
Advertising matter	Free.	Bricks, common	.01
Acid, carbolic	Free.	Boats	.01
Anchors	$0.02	Bottles, empty	.01
Axes (pick)	.02	Barley	.02
Axles (cart, carriage, and wagon)	.02	Books:	
Achiote	.05	Printed, and other printed matter	.02
Alum	.05	Copy	.02
Anise	.50	Account	.10
Articles, fancy, all kinds not specified	1.00	Barometers	.05
Albums	1.50	Barrels, empty	.05
Ammunition	2.00	Beer	.05
Buoys, iron	Free.	Brooms	.05

Table showing import duties per kilogram—Continued.

Articles.	Duty.	Articles.	Duty.
Bags, hemp	$0.05	Earthenware:	
Buggies, whole or in part	.05	Empty jugs	$0.01
Butter	.10	Jars and barrels	.05
Brass, manufactured	.10	Fine (jars and jugs)	.10
Buttons	.50	Enamel	.50
Bells, small	.50	Embroideries, wool and cotton	1.00
Braids	.50	Fruits:	
Bridles	.50	Fresh	Free.
Beads, glass	1.00	Dried	.05
Buckles, knee	1.50	Felt, pitch, for ships	.10
Bars (crow)	.02	Furniture, all kinds	.10
Coal:		Fish, salted	.02
Mineral	Free.	Figures, wooden and marble, more than 1 m.	.05
Charcoal	.01	Flour, all kinds	.05
Coin, money	Free.	Fire-works	.50
Copper:		Feathers, ostrich	1.50
Rough plate, not polished or pierced	.02	Fans	1.30
Polished or engraved	1.00	Flowers, artificial	1.50
Bronze, manufactured sheets	.10	Guano	Free.
Carts	.02	Gold, dust and bars	Free.
Corn, Indian	.02	Garlic	.01
Card-board:		Glass, window	.01
Common	.02	Glassware:	
For book-binding	.05	Ordinary	.05
Cotton, lint and seed	.05	Fine	.10
Compasses	.05	Girders for house-roofing	.02
Chains for ships	.05	Globes, geographical and astronomical	.02
Cocaine	.05	Gloves, all kinds	1.00
Crucibles	.05	Guns, breech-loading	1.00
Chica (beverage)	.05	Hose, fire-engine	Free.
China-ware, fine	.05	Hides:	
Cloth:		Fresh or dried, but not tanned	.01
Oil-cloth	.05	Calf, not tanned	.05
Packing and canvas	.05	Hay	.01
Woolen	.50	Houses, wooden, and iron material for	.01
Crape	1.00	Hops	.02
Crow-bars	.02	Hooks, bill and pruning	.02
Cement, Portland	.01	Harness for carriages	.05
Clay (fire)	.01	Hams	.50
Cutlasses	.05	Handkerchiefs, not silk	.50
Corks	.10	Hammocks	1.00
Cork-screws	.50	Hats (ladies', children's, and men's)	1.50
Candles	.10	Hair, natural and artificial	1.50
Cutlery (scissors, pocket and other knives)	.50	Iron:	
Coaches, whole or in part	.05	Flooring for drying cocoa	Free.
Cards, playing	2.00	Bridges	Free.
Crowns and other decorations	2.00	Bars, plates, pig, raw, roofing	.02
Corsets	1.00	Manufactured	.10
Crochet goods	1.00	Hoop	.02
Calcomonia	1.00	Ink:	
Cases, cigar and cigarette	1.50	Printing	.10
Coral, raw or manufactured	1.50	Writing	.05
Canes, walking	1.00	Indigo	.10
Dynamite	.01	Ivory, manufactured	1.50
Demijohns	.01	Jewelry:	
Decorations, all kinds, for robes	1.00	Gold, silver, and precious stones	2.00
Dice	2.00	Plated	1.00
Daggers	2.00	Lime	.02
Engines, fire, and fixtures	Free.	Chlorate	Free.
Eggs	Free.	Sulphate	.10
Envelopes	.10		

Table showing import duties per kilogram—Continued.

Articles.	Duty.
Lint, hospital	Free.
Lavender	$0.05
Lead:	
In bars	.05
Manufactured	.10
Leather, manufactured	.50
Linseed	.05
Lines (clothes, fishing, etc.)	.10
Lard	.10
Lenses, eye	1.00
Lace	1.50
Masts for ships	Free.
Machinery:	
Printing, agricultural, and other industrial	.01
For soda manufacture	.05
Mausoleums, not more than 1 m. high	.05
Macaroni	.05
Music, written and printed	.05
Musical instruments not more than 1 m. high	.10
Mustard	.10
Mats, China	.10
Marble:	
For furniture, or with iron	.10
For pillars and columns	.10
Matches	.10
Meat, salt	.05
Masks	2.00
Nails, metal	.02
Nuts:	
Almonds, hazle, and walnut	.10
Cocoa	.01
Small	.05
Onions	.01
Oil:	
Machine	.05
Olive, linseed, castor, and almond	.10
Olives	.10
Organs:	
Mouth	.10
Church	.05
Oakum	.05
Opium	2.00
Preservers, life	Free.
Plants, live	Free.
Potatoes	.01
Plows	.01
Plowshares	.02
Powder	.01
Marble	.02
Face	1.50
Pumps, hand	.02
Pitch	.02
Propellers for steam-ships	.02
Pencils, slate	.02
Paper:	
Printing	.02
Straw and packing	.02
Writing and others not named	.10
Sand and glass	.10

Articles.	Duty.
Pipes:	
Iron and earthenware, more than 12 centimeters interior diameter	$0.02
Iron, china, and earthenware	.02
Poison for preserving and curing hides	.05
Pickles	.10
Pegs, shoe	.10
Paints, in powder or other form	.10
Perfumery	1.50
Purses, money	2.00
Petroleum, not less than 150 per cent	.05
Railway supplies	Free.
Rice	.01
Retorts, gas, of fire-clay	.02
Rope:	
Sisal and manila	.05
Cotton	.10
Rubber, manufactured	.50
Rouge	2.00
Revolvers	2.00
Ships, material for	Free.
Sulphur for wine	Free.
Seeds, all kinds	Free.
Screws, cork	.50
Samples, merchandise	Free.
Slate:	
For roofing	.01
School	02
Steel:	
Unmanufactured	.02
Manufactured	.10
Staves for barrels	.02
Sicale	.02
Stone-ware, common	.02
Spades	.02
Soda	.02
Caustic	.02
Stones, filter	.02
Starch, all kinds	.05
Seed:	
Canary	.05
Cumin	.05
Sugar	.05
Soap, common	.05
Stones:	
Grave, not more than 1 m.	.05
Of all kinds, not specified	.05
Straw, broom	.05
Sago	.05
Salt, table	.05
Saltpeter	.05
Stoves	.05
Sulphur	.10
Sirups	.10
Shoes, except for mariners	.50
Spurs	.50
Sausage	.50
Shovels	.02
Silks, and all goods containing silk; also, those containing gold, silver, real or imitation, or other metal threads	1.00

Table showing import duties per kilogram—Continued.

Articles.	Duty.	Articles.	Duty.
Stearine	$0.10	Tobacco	
Stereoscopes	1.00	Manufactured	$2.00
Smokers' utensils and goods	1.50	Unmanufactured	1.00
Shells, tortoise, manufactured	1.50	Umbrellas and sunshades	.50
Strings, musical	1.50	Vegetables, fresh	.01
Spangles	1.50	Vanilla de algarrobo	.01
Swords	2.00	Varnish	.10
Stones, precious	2.00	Vinegar	.10
Tiles, brick	.01	Views, stereoscopic	1.00
Tar	.02	Wood:	
Trucks	.02	Manufactured	.01
Tin:		Dye	.02
Unmanufactured	.02	Wheels:	
Manufactured	.10	Pilot	.01
Tacks, metal	.02	Cart, carriage, and wagon	.02
Turpentine	.05	Wire and fasteners	.02
Thread:		Wheat	.02
Cotton	.05	Water, mineral	.05
For bags and sails	.10	Wax	.10
Metal	1.00	Wine	.10
Tallow, in slabs	.05	Wool, woven and unwoven, with or without silk thread	.50
Trunks	.10		
Tables, billiard, and fixtures	.10	Zinc:	
Tools	.10	Bars and plates	.02
Toys	.50	Manufactured	.10

On all goods and articles not mentioned or specified a duty of 25 cents per kilogram, in bulk, is charged. On ready-made clothing an additional duty of 25 per cent. is charged. Over and above all duties, expressed or not expressed, an extra duty of 20 per cent is charged.

A proposition was made the foreign bond-holders by the Government to pay, in settlement of the bonded indebtedness, $750,000; and provision was made, should the holders of the bonds accept, to impose a "special" and additional import duty of 10 per cent., to meet the accruing interest and to create a sinking fund. The bond-holders have accepted the Government's proposition; hence 10 per cent. additional will be added to the tariff, as soon as all arrangements respecting the foreign bonded debt have been concluded.

Table showing export duties per 100 kilograms.

Articles.	Duty.	Articles.	Duty.
Cocoa	$0.64	Leather, sole	$1.00
Coffee	.64	Rubber	5.00
Hides	.64	Tobacco	5.00
Mangrel bark	.64	Straw:	
Orchilla	.64	Mocora	5.00
Ivory-nuts	.10	Tocilla	12.00

WILLIAM B. SORSBY,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Guayaquil, October 25, 1890.

WHEAT, WOOL, AND COTTON IN BRAZIL.*

REPORT BY CONSUL-GENERAL DOCKERY, OF RIO DE JANEIRO.

WHEAT.

Experimentally, wheat has been grown in Brazil as far north as Pernambuco. There is no proof, however, that it can ever be grown advantageously in any of the states except Rio Grande do Sul, Paraná, and Santa Catharina, though some persons assert that there are good wheat lands in São Paulo and Minas-Geraes. This assertion, they say, is justified by experiments that have been made.

Wheat can certainly be grown in all of those states, but I have seen no evidence that it can ever become an important product of any except the three first mentioned.

It is probable that only a comparatively small part of the vast territory of Brazil is suitable for wheat growing.

The following statement shows the estimated area of each of the states into which this territory is divided:

States.	Area.	States.	Area.
	Sq. miles.		*Sq. miles.*
Amazonas	720,000	Ceará	40,000
Matto-Grosso	530,000	Santa Catharina	28,000
Para	435,000	Parahyba	28,000
Goyaz	285,000	Rio de Janeiro	27,000
Minas-Geraes	220,000	Alagoas	22,000
Maranhão	180,000	Rio Grande do Norte	21,000
Bahia	170,000	Espirito Santo	16,000
Piauhy	120,000	Sergipe	15,000
São Paulo	105,000	Federal district	500
Rio Grande do Sul	90,000	Total	3,166,500
Paraná	85,000		
Pernambuco	50,000		

What portion of this territory is suitable for wheat is not known, though, as I have stated, it is to be presumed that it is comparatively small. Neither is it known what is the average production to the acre. It is officially stated that there are lands on which a bushel of wheat sown will produce a crop of from 30 to 70 bushels. It is not stated whether this production is usual or, as I suppose, exceptional. Neither is the total production of the country stated. It is known, however, that this production is small, and that to the market of Rio de Janeiro there comes no Brazilian wheat at all. Both of the mills here (one with a grinding capacity of 216 tons of wheat per diem and the other with that of 80 tons) import foreign wheat, which comes from the United States, Europe, Australasia, and the river Plate.

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*This report and the three following reports from Rio Grande do Sul, Uruguay, and the Argentine Republic were prepared in answer to instructions from the Department sent out at the request of a leading statistician, who represents some industrial interests in the Eastern States, and who claims "that the depression in the price of wool in the Argentine Republic has gone down to such an extent as to check the product, while immigration is pouring in which has to be set to work; that it has been discovered that the soil in the Paraná River, which has been so peculiarly fitted to the production of cattle and sheep, is now in first-rate condition for the production of wheat, and large areas are being plowed up and planted in wheat; that plows and agricultural tools in large quantities are being shipped from the United States to the Paraná River, to be used in the production of wheat and other grain; that this section of South America is better adapted to the production of the best cotton than the greater part of our cotton states; and that the competition from the Paraná River with the wheat fields of the United States will assume greater proportions than that of India or Russia."

In 1888 the two mills imported 14,000 tons of wheat, and last year the larger mill imported 41,555 tons of wheat and sold 205,655 barrels of flour. I have not been able to obtain statistics of the wheat imported and flour produced by the smaller mill in the year 1889.

When our millers learned, in 1887, that it was proposed to enlarge the small flour-mill which for some years had been in operation here and to establish another and larger one, it caused them, as was natural, considerable anxiety. Up to the present, however, no great injury seems to be done to our flour trade, as will be seen by the following statement showing the receipts and extreme prices of American flour in the Rio de Janeiro market from 1886 to 1889, inclusive:

Year.	Receipts.	Price per barrel.
	Barrels.	
1886	307,625	$5.40 to $8.77
1887	328,804	4.84 to 7.70
1888	267,658	4.50 to 12.00
1889	344,108	6.25 to 8.50

This result is not surprising, since, in every respect except custom-house duties, the American millers have the advantage over the Rio de Janeiro mills. The cost of their plants is comparatively smaller, their operating expenses are lighter, their raw material is cheaper and better, they have the whole world as a market, and in shipping flour to Brazil can consult the tastes of the consumer. The Rio de Janeiro mills, on the contrary, are limited to the Brazilian market, and are obliged to sell their products here, whether they are suited to the market or not. In many instances, no doubt, these products are sold at an actual loss. As a compensation for the disadvantages under which they labor, the Rio de Janeiro mills have only in their favor, not, as is supposed, the duty of 75 cents a barrel on flour, but the difference between that sum and the custom-house expenses on the quantity of wheat required to make a barrel of flour, for wheat, though nominally free, really pays in the custom-house a charge of about 90 cents per ton.

I do not, then, for some time apprehend any serious injury to our flour trade from the mills established here, even if their number should be increased, as is proposed, by the establishment of two in São Paulo. Still, it will be prudent for our millers to meet this competition with united action and with strenuous exertions for improving the facilities for commercial intercourse between the two countries. And in this respect our Government can assist them with a treaty of commercial reciprocity, which the Brazilians greatly desire, since they very wisely attach more importance to a market for their sugar than to the encouragement of exotic industries. The desire of the Brazilians for commercial reciprocity will, I think, induce them to make us valuable concessions.

Rapid, frequent, punctual, and cheap steam communication between Brazil and the principal sea-ports of the United States would be useful to our flour trade and, in fact, to every branch of commerce. The superiority of European nations in this respect is one of the most formidable obstacles with which we have to contend.

While the Rio de Janeiro mills, as I have said, have done no serious injury to our flour trade, and such injury as has been done is partly compensated by the opening of a new market for our wheat, including that of California, which had not previously been imported in any form into this country, and while the present prospects of the wheat and flour industry in Brazil are not such as to excite apprehension, still I do not think it advisable for us to content ourselves with this and neglect the means within our reach of strengthening our commercial interests. The natural aspiration for continual progress should stimulate us to endeavor to improve the present markets for our products, and ordinary prudence should lead us to prepare, as far as possible, for new contingencies that may arise. One of such contingencies is the growth of the wheat and flour industry in the countries south of Brazil. River Plate flour began to compete with ours in this market some ten or twelve years ago. Thus far the result has not been unfavorable to us, as may be seen by the following statement comparing the receipts of flour in this market from the river Plate with those from the United States from 1886 to 1889, inclusive:

Year.	River Plate.	United States.
	Barrels.	*Barrels.*
1886	70,101	307,625
1887	63,871	328,804
1888	88,280	267,658
1889	....	344,108

Last year the wheat crop in the Argentine Republic was greatly injured by heavy rains, and this is the principal reason why no river Plate flour came to this market, though it is possible that the competition of the flour produced by the Rio de Janeiro mills may have contributed somewhat to its exclusion. The area of wheat land in cultivation in the Argentine Republic is said to be about 2,000,000 acres. Nearly half of this is in the province of Santa Fé and nearly half of the remainder in that of Buenos Ayres, leaving about 600,000 acres for the other provinces. The acreage is said to be rapidly increasing. There are said to be about 4,000,000 acres in other crops, making a total acreage in cultivation of about 6,000,000 acres. It is stated that the acreage in wheat is susceptible of being largely increased, as the lands are very suitable for this grain. The greater part of the possible wheat lands are evidently still remote from markets and railway communication, as the whole country has only between 5,000 and 6,000 miles of railway.

From 1883 to 1885, inclusive, the Argentine Republic exported the following quantities of wheat and flour:

Year.	Wheat.	Flour.
	Bushels.	*Barrels.*
1883	2,227,000	53,800
1884	3,978,000	41,50
1885	2,878,000	82,7

The official value of the flour exported in 1885 was $521,291 in Argentine money, that is, at the rate of about $6.30 per barrel. The wheat exported in the same year was valued at $3,139,736, that is, at the rate of about $1.12 per bushel. I have seen no statement of the wheat and flour exported in 1886 or of the flour exported in 1887. In the latter year there were exported 8,720,000 bushels of wheat, valued at $9,514,000 in Argentine money, and in 1888 there were exported 6,560,000 bushels of wheat, valued at $8,248,000, and 71,000 barrels of flour, valued at $639,000. In 1888 the price of river Plate flour in the Rio de Janeiro market varied from $4.05 to $10.17 per barrel in United States currency.

The greater part of the wheat exported from the Argentine Republic goes to Great Britain, Belgium, and France, as is seen by the following statement showing the quantity exported to each of those countries in 1888:

	Bushels.
Great Britain	3,476,000
Belgium	1,663,000
France	434,000
Total	5,573,000

The greater part of the flour exported and some of the wheat comes to Brazil. I have not been able to obtain an estimate of the quantity consumed in the Argentine Republic.

WOOL.

In Brazil the wool industry is unimportant, and is confined almost exclusively to the state of Rio Grande do Sul. I am told, however, that there are excellent grazing lands in Paraná, western São Paulo, central and western Minas-Geraes, Goyaz, Santa Catharina, and some of the northern states, though in the latter and in many parts of the former the climate is unsuitable for sheep breeding.

COTTON.

Brazil possesses vast tracts of land admirably adapted to the culture of cotton. There is no part of the country in which this product can not be grown. At present Pernambuco and Maranhão occupy the first rank as cotton-growing states, while in the second rank may be classified those of São Paulo, Bahia, Sergipe, Alagoas, Parahyba, Piauhy, Rio Grande do Norte, and Ceará.

In 1860 the exportation of cotton from Brazil amounted to about 12,000 tons, and, as at that time there were few factories in the country, the bulk of the crop was exported. The high prices caused by the war in the United States gave a vigorous impulse to production, and between 1864 and 1869 the annual exportation averaged 40,000 tons. In São Paulo especially the progress in production was wonderful. In a few years the crop increased from less than 100 tons to over 15,000 tons. Between the years 1869 and 1874 the progress continued, the exportation averaging at that time 54,000 tons per annum. Recently the production has greatly diminished, only 18,246 tons being exported in the fiscal year 1884–'85. In São Paulo, where there are excellent cotton lands, the crop last year was insufficient to supply the local demand. The decrease in production was due to the decline in prices and to the difficulty in obtaining laborers. To counteract these causes, efforts were made to secure the removal of the export duty. As these efforts were not successful, many persons who had engaged in the culture of cotton have abandoned it.

Did the future of this industry depend only upon the fertility and suitability of the soil in Brazil, it would assuredly be a great one. In default of positive data, it is impossible for me to state precisely the average yield per acre; but I feel warranted in saying that it is not inferior to the average in the United States and that, were the lands as well cultivated, it would be much larger. A yield of 1,500 pounds of seed cotton, or 500 pounds of lint cotton, is by no means uncommon, and I have heard of as much as 3,200 pounds of seed cotton being gathered from an acre.

The growth of the cotton industry in Brazil seems at present to depend on immigration, improved methods of culture, and the establishment of cotton factories. There are now probably over a hundred of the latter in Brazil, and the number is gradually increasing. About $5,000,000 of new capital were invested last year in this business in Rio de Janeiro.

The following statement shows the receipts of cotton in this market for the three years ending December 31, 1889:

	Tons.
1887	4,118
1888	5,599
1889	5,850

All of this cotton is consumed by the factories. The total home consumption is probably about 15,000 tons. If this estimate be correct, the average crop is about 35,000 tons, equal to 175,000 bales of 440 pounds each. The territory required for producing this crop probably does not exceed 400,000 acres.

As to the acreage suitable for growing cotton, it is almost unlimited. I suppose that at least one-tenth of the whole area of Brazil, or over 300,000 square miles, could, under favorable circumstances, be advantageously devoted to the culture of cotton. At an average of only 100 pounds per acre this territory would produce over 40,000,000 bales of cotton.

Notwithstanding the steady and healthy growth of the cotton manufacturing industry in Brazil, the importation of foreign cotton goods continues to increase, forming, as it has always done, one of the most important branches of trade in this country. The official value of these goods imported in 1888 at this port was $14,400,000. As the official valuation is high, the real value of these goods was probably somewhat less. The greater part of the cotton goods imported into Brazil comes from England, and to that country is shipped the bulk of the cotton exported.

In general, neither the present nor the future cotton districts of Brazil are well supplied with railways. The total length of the railroads in Brazil does not exceed 6,500 miles, of which about two-thirds are in the three states of Rio de Janeiro, São Paulo, and Minas-Geraes.

TOPOGRAPHY, CLIMATE, AND SOIL.

Brazil is, in general, mountainous, though it possesses vast plains and extensive valleys.

The most important mountain range is the Central or Mantiqueira, which extends from the banks of the river São Francisco to the Cantareira range, near the city of São Paulo. The highest mountain in this range is the Itatiaya, whose summit is about 10,000 feet above the level of the sea.

The eastern or coast range extends from the sixth to the thirtieth degree of south latitude.

The western or water-shed range is longer than either of the other two, but not so high. It extends from Piauhy and Ceará to Matto-Grosso, where it throws out two spurs, one to the west and the other to the south, the former extending to Bolivia and the latter to Paraguay. This chain separates the head waters of the tributaries of the Amazon and Tocantins from those of the São Francisco and Plate.

In the extreme north are the Tumucuraque or Paracayma Mountains, but of these only a small part is in Brazilian territory. There are numerous subordinate ranges.

The mean temperature in the country between Rio de Janeiro and the Amazon is 26° centigrade above zero; that of the valley of the Amazon is 27°. In no part of Brazil is it hardly ever higher than 36°, and even that is exceptional. On the prairies of Rio Grande do Sul the lowest temperature that has ever been noted is 3° centigrade below the freezing point. On the Itatiaya Mountain, which, as before stated, is 10,000 feet high, the temperature was on one occasion in 1858 and again in 1859 as low as 6° centigrade below the freezing point. It is stated that an elevation of 700 feet makes a difference of a little over 1° centigrade in the temperature.

On the coast of Brazil southeast and northeast winds usually prevail, the former from April to August, the latter from September to March. In the valley of the Amazon easterly winds penetrate the interior of the country to the distance of 2,000 miles, and between July and November sailing vessels ascend the river as far as Manáos, which is 1,200 miles from the coast. In the interior southerly winds usually prevail in winter and northerly winds in summer.

The rainy season begins at any time from November to January, and usually terminates in May or June; but in localities in which the soil has been denuded of the dense forests which originally covered it the seasons have become very irregular. In general the rains fall in soft, copious, and steady showers, sometimes lasting for several days or even weeks. In the state of Para, on the sea-coast, it is said to rain regularly almost every day about 4 p. m. Sometimes there are violent storms that greatly damage the crops. On the coast lands of southern Brazil cotton does not mature well on account of excessive moisture. In the country between the Amazon and Parnahiba rivers rains are abundant. Then follows a vast territory, extending to the São Francisco River, subject to long droughts. These are most intense in the state of Ceará and the territory immediately adjoining it. South of the São Francisco River the rain-fall is usually sufficient, except in localities denuded of the forests that originally covered the soil. On the coast of Brazil, taken as a whole, the yearly rain-fall is said to average 78 inches, though it varies greatly in different years and different localities. In the interior it is much drier than on the coast.

I have not been able to obtain the required information concerning the geologic conditions of the country; but the following unscientific description of the soil of the state of São Paulo will, perhaps, not prove uninteresting:

The coast lands of São Paulo, *i. e.*, the lands between the sea and the eastern range of mountains, have two kinds of soil. The first kind belongs to the low, flat, and moist lands, and consists, for the most part, of sand mixed with decayed vegetable matter and, in some instances, with rotten shell or marl. The second kind is found on the slope of the mountain range looking towards the sea, and has a basis of clay mixed with sand and vegetable matter. It produces cotton moderately well.

The table-lands in the interior of the state are divided into three kinds: *Terra roxa*, or purple lands; *Terra vermelha*, or red lands; *Terra blanca*, or white lands. These varieties of land are not apportioned among different and distinct districts, but are found indiscriminately interspersed throughout the region they occupy. The best land is the purple, or *Terra roxa*. This soil is loose and loamy, and extends to a great depth. Its fertility is almost inexhaustible, and I have heard of good crops being grown without manure on *Terra roxa* lands that have been in cultivation for fifty years. The *Terra vermelha* (red land) is very compact and firm, and produces good crops of cotton and other products. It is said to retain its fertility, without manuring, for ten or fifteen years. Of the *Terra blanca*, which is of a light yellowish color, the principal component part is white sand. Its fertility varies in proportion to the amount of vegetable matter it contains. It sometimes produces as well as *Terra roxa* (probably containing then a mixture of clay and marl in addition to the two elements above mentioned), but in general it is poor, and becomes exhausted after being cultivated for about five years.

The prairie lands of this region have two kinds of soil—*Terra blanca* and *Terrà vermelha*. The former is of little value, either for cultivation or grazing; but the latter is covered with excellent grass, and, when cultivated, yields good crops.

It is said that the farther west you go the better the lands become.

O. H. DOCKERY,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Rio de Janeiro, September 2, 1890.

WHEAT, WOOL, AND COTTON IN RIO GRANDE DO SUL.

REPORT BY CONSUL BENNINGTON.

WHEAT.

The state of Rio Grande do Sul has an area of at least 118,000 square miles, but, as agriculture receives so little attention, grazing being the chief industry, it is impossible to ascertain within a reasonable degree of accuracy how much of the country is arable and what part is under cultivation.

The northern half of the state is wooded, but the southern part is an undulating, treeless plain, with slight occasional ranges of hills extending east and west, but one of which has sufficient elevation to be termed mountainous. The highest point in the state is in the northern part, being 720 meters above the level of the sea. From personal observations made in the southern part of the state, I judge that a very large portion of it could be put under cultivation, and the soil has all the appearances of good quality. The geological formation of the untimbered section, or at least the greater part of it, is granite; there is no lime known, and but little sand-stone has been seen. But, as no geological surveys of this section have been made, it is impossible to acquire much information on this subject.

Agriculture is followed chiefly by Italian and German immigrants who have arrived in this part of Brazil within the past few years, the greater part of whom have been located by the Government on public lands in parts of the country remote from rail or river transportation. Out of a population of 1,000,000 in this state, not 100,000 derive a living directly from agriculture.

It is the opinion, however, of those who have observed the tendency of the industry of the country, that within a few years the cultivation of wheat and other grains will be very much increased, for the reason that the low price now ruling for cattle and animal products will oblige the people to produce something else, in order to meet the food demand, which, naturally, is annually increasing. Some difficulty lies in the way of agricultural development, because there is a disposition to hold land in large tracts, some tracts embracing as much as 200 square miles; these are exceptional, however, the greater number being much less. But little of these good lands is for sale to those who want small tracts for farming purposes.

As far back as 1805, and up to 1820, wheat was produced in this part of Brazil for export; but the area under cultivation I have not been able to ascertain.

The following table, taken from a work entitled "Memoeies Econopolitics," written in 1822 by José Gonçalves Chaves, shows the amount produced, more or less, during this period of time:

Year.	Quantity.	Year.	Quantity.
	Bushels.		*Bushels.*
1805	136,825	1813	341,087
1806	87,755	1814	270,259
1807	140,338	1815	288,447
1808	257,308	1816	279,621
1809	154,038	1817	133 359
1810	190,545	1818	76,395
1811	205,534	1819	121,542
1812	213,928	1820	109,608

Wheat farming was abandoned, practically, for cattle breeding about that time, because of rust destroying two or three crops in succession. Since the introduction of German and Italian immigration into this state, some wheat has been grown in the colonies, especially the Italian colonies of Caxias, Donna Isabel, Conde d'Eu, and Silveira Martins, which are situated northwest of Porto Alegre, at various distances, one as remote as 75 miles and at least 40 miles from railroad or navigable river. These colonies produced in 1884 5,639,300 kilograms of wheat, and they produce enough to-day to supply the natural increase of demand for bread among them, which contain a population of from 75,000 to 100,000. Their great distance from markets and the fact that there is but one mill in the entire state which makes flour for the local trade prevents the development of wheat farming. In the first years of their experiments with wheat on freshly cleared lands the yields were very great (varieties sown being Neapolitan and Lombard), but afterwards diminished, which led to the belief that, when there were no more clearable lands, wheat could not be grown; but there is little doubt that the application of the rules of good farming would maintain profitable yields of grain. Wheat farming is certain to increase, and, so soon as good mills are provided, enough at least will be produced to supply the local markets. Native-grown wheat can scarcely be said to be in the market. I am, therefore, unable to quote prices; but the only flouring-mill of the state, at Pelotas, grinding 100 bushels per day, imports wheat from the United States and the Argentine Republic, some of which costs $1.25 per bushel.

At the present time a very great portion of the arable part of the state is remote from rail or river transportation—some parts at least 200 miles, but the greater part from three to five days' journey with loaded carts over a country practically without roads.

CLIMATE.

The seasons, of course, are the reverse of the northern hemisphere; and, as to climatic conditions, I can only give the results of meteorological observations made in this city, which is situated in latitude 32° 40″ S., and 52° 8′ 19″ longitude west of Greenwich.

Table showing the direction of winds for the years 1877–'82, inclusive.

Direction.	1877.	1878.	1879.	1880.	1881.	1882.	Total.	Average.
	Days.	*Days.*	*Days.*	*Days.*	*Days.*	*Days.*	*Days.*	*Days.*
North	53	54	63	50	42	24	286	47.7
North-northeast	43	20	57	96	86	44	346	57.6
Northeast	119	192	223	200	206	211	1,151	191.8
East-northeast	76	30	22	40	79	122	369	61.5
East	133	111	92	93	113	99	641	106.8
East-southeast	46	26	35	26	40	48	221	36.8
Southeast	67	84	95	65	33	33	377	62.8
South-southeast	5	15	45	64	44	24	197	32.8
South	167	152	100	127	91	79	716	119.3
South-southwest	27	25	30	44	44	77	247	41.1
Southwest	60	102	103	109	117	117	608	101.3
West-southwest	13	16	16.	29	29	75	178	29.6
West	196	61	59	78	78	53	525	87.5
West-northwest	8	12	15	13	19	19	86	14.5
Northwest	24	18	20	15	8	20	105	17.5
North-northwest	6	9	6	13	18	9	61	10.1
Variable	....	....	....	....	....	1	1	0.16
Calm	11	51	33	35	47	41	218	36.3
Total	1,054	978	1,014	1,097	1,095	1,095	6,333	1,055.16

I am unable to give later collected reports on the number and direction of winds, but, as appears from the foregoing table, the predominant winds in this section are northeast, south, and east.

The strongest winds are northeast, east-northeast, and southwest. Those accompanied by the strongest barometric or atmospheric pressure are southeast, east, and south-southeast. The hottest winds are from the northeast, east, southeast, and south-southeast. The coldest blow from the south-southwest, southwest, and north-northwest. Those carrying the most humidity are north-northwest and north-northeast, and those which are most generally accompanied by rain are from the south, southeast, and southwest. Rains in the summer are likely to be more violent than those of the winter. The rains of the latter season are steadier, and frequently last from one to three days. As to the frequency of rains in summer or winter, I am unable to give any statistics.

The following table shows the rain-fall at this city for each month of the years 1885 to 1888, inclusive:

Month.	1885.	1886.	1887.	1888.	Average
	Millim.	*Millim.*	*Millim.*	*Millim.*	*Millim.*
January	79.9	145.8	13.4	29.2	67.1
February	65.6	40.2	65.2	....	42.7
March	44.6	104.2	25.4	31	51.3
April	179.8	87	58	70	98.7
May	63.6	64.6	28.3	41.4	49.5
June	17.8	109	60.2	206	98.2
July	30.4	5.8	66.2	40.6	35.7
August	61.2	11.3	75	92.8	60.1
September	24.8	102.6	2.2	28	39.4
October	27.2	39	97.8	127.6	72.9
November	51	64.2	38	14.4	41.9
December	49	20.4	120	24.2	53.4
Total	694.9	794.1	649.7	505.2	661

The days of each year in which the most rain fell were as follows: 1885, April 15; 1886, April 21; 1887, December 17; 1888, June 11.

The following table shows the temperature per month for the years 1885 to 1888, inclusive, as indicated by the centigrade thermometer, in general use at this place:

Month.	1885.	1886.	1887.	1888.	Average.
	Degrees.	*Degrees.*	*Degrees.*	*Degrees.*	*Degrees.*
January	24.40	24.46	24.12	23.66	24.16
February	24.58	24.34	23.23	24.65	24.20
March	22.80	24.28	22.35	23.52	23.24
April	19.36	19.18	19.55	20.73	19.70
May	16.79	15.80	15.74	15.17	15.87
June	11.49	13.04	15.64	11.90	13.02
July	11.29	11.91	14.47	14.73	13.10
August	12.19	13.68	16.58	15.86	14.58
September	15.08	15.51	14.04	16.51	15.28
October	17.41	16.70	17.41	18.24	17.44
November	20.51	19.92	20.35	20.37	20.29
December	22.13	22.45	22.48	23.96	22.75
Average	18.17	18.44	18.83	19.11	18.64

Statement showing the dates of the highest averages of temperature.

	Degrees.
January 9, 1885	30
January 16 and March 10, 1886	30
January 18, 1887	29
December 17, 1888	32

Statement showing the dates of the lowest averages of temperature.

	Degrees.
June 4, 1885	1
July 12, 1886	5
September 26, 1887	6
June 12, 1888	1

The following table shows the relative humidity of the air for each month of the years 1885 to 1888, inclusive, saturation being 100°:

Month.	1885.	1886.	1887.	1888.	Average.
	Degrees.	*Degrees.*	*Degrees.*	*Degrees.*	*Degrees.*
January	85	88.3	92.5	73.7	84.9
February	92.7	88.5	90.1	71.9	85.8
March	95	91.6	90.4	75.6	88.1
April	87.5	90.4	90.7	73.8	85.6
May	90.2	92.4	87.4	76.1	86.5
June	94.3	92.6	90.2	90	91.8
July	91.2	93.1	93.8	90.1	92
August	91.4	89.9	89	86.9	89.3
September	87.6	92.8	83	86	87.4
October	86.4	90.6	82.7	86.1	86.4
November	91.8	87.3	75.2	74.4	82.9
December	83.4	85	74.9	77.1	80.1
Average	89.7	90.2	86.6	80.4	86.7

WOOL.

There are no statistics by which the number of sheep in this state can be ascertained. Live stock in the possession of the breeder is untaxed, and no enumerations have been made for the purpose of ascertaining either value or number. The records of this office show that 223,268 kilograms of wool were exported from this port to the United States in the year 1889, being chiefly of the coarser grade, which is worth here from 9 to 11 cents per pound; though this latter price is scarcely ever paid except for the higher grades. Germany and France take some, but not to exceed 100,000 kilograms per annum, and a woolen-mill in this city consumes in its manufactures about 500,000 kilograms of native wool per year; therefore, the amount of wool produced annually in this state may be estimated at about 850,000 kilograms.

The production is increasing very little, if any, at this time, and not so much care is taken in the selection of sheep for breeding purposes here as in the neighboring republics on the south. Sheep are generally large, producing the coarser grades of wool; are worth from 90 cents to $1.80 per head, and produce from 1½ to 2 kilograms of wool at a shearing.

COTTON.

Cotton can be grown in most parts of this state; but it is not cultivated to any extent, only very little in the northern part for domestic use being spun and woven in the families of those who raise it. All the material which the cotton-mill of this city requires is brought from the north of Brazil. The cultivation of cotton has never been an industry in this state, though there is no doubt but fairly good crops might be produced. However, in my opinion, when people here begin to turn their attention to agriculture it will be in the cultivation of cereals and other farm products that furnish food for home consumption, and to supply the northern parts of the country, which, by reason of climatic conditions, are unable to grow such products so well as this, which is, perhaps, as well adapted to that purpose as any other portion of Brazil.

LEBBEUS G. BENNINGTON,
Consul.

UNITED STATES CONSULATE,
Rio Grande do Sul, July 31, 1890.

WHEAT, WOOL, AND COTTON IN URUGUAY.

REPORT BY CONSUL HILL, OF MONTEVIDEO.

RIVERS AND RIVER NAVIGATION.

The Banda Oriental, or Uruguay, lies between 30° 5′ and 35° south latitude and 52° and 58° west longitude (Greenwich). In form this smallest of South American republics is an irregular polygon, whose perimeter, except on the north, where it touches the Brazilian province of Rio Grande do Sul, is made up of large bodies of water—on the east by the Atlantic Ocean, on the south by the river Plate, and on the west by the Uruguay River. Even the northern boundary is formed for a distance of 245 kilometers by the Cuareim River, the navigability of which is being considered by the governments of the two countries interested. Of the entire boundary lines of the Republic, aggregating 1,075 miles, 625 miles are washed by navigable waters, and this leaving out of calculation that part formed by the Cuareim River, which could, without great difficulty, be made navigable for light-draught river boats. Of this coast-line, 200 miles border on the Atlantic Ocean, 155 miles on the river Plate, and 270 miles on the Uruguay River. The river Plate is, at its point of contact with the ocean, 170 miles wide, and its length from that point to the island of Martin Garcia, where it is formed by the union of the Paraná and Uruguay rivers, is 180 miles. Although it has some of the features of a river, it is yet a true estuary, a vast reservoir supplied by the waters of innumerable streams, and, were it so called, its character would be better understood. The Uruguay River, rising in the Sierra Santa Catalina, in latitude 27° 30′ S., flows west to the confines of the Argentine "province" of Missiones; thence south, and pours its waters into the Plate at 34° south latitude. This river, which courses the entire western boundary of the country, dividing it from the Argentine provinces of Entre Rios and Corrientes, a distance of 530 kilometers, is navigable during a portion of the year as far as the important city of Paysandú (population, 15,000) for vessels drawing from 13 to 14 feet of water. The large river boats, drawing 8 or 9 feet, of the Platense line, a sort of octopus that has swallowed up nearly all competing lines on this as well as on the Paraná and Paraguay rivers, ascend as far as Salto, another of the leading towns of Uruguay, situated 290 miles from Martin Garcia and 15 miles below the Salto Grande (great falls) of the river, whence its name. The Platense people maintain a regular service of superior boats, scheduled to leave Montevideo on Tuesdays, Thursdays and Saturdays for Salto, and, returning, to leave Salto Mondays, Wednesdays, and Saturdays, making on either trip a call at Buenos Ayres. The upper and lower rivers are connected by the Northwestern of Uruguay Railroad, begun in 1872 and built for this purpose, to wit, to provide a means of transport or portage along that portion of the river Uruguay which is obstructed by rapids, so as to establish, as it has done, through communication between the steamers of the two rivers. The width of the Uruguay varies greatly, being from 6 to 9 miles from its mouth to Fray Bentos, the seat of the Liebig extract-of-beef works, while further up, at Salto, it has contracted to a few hundred feet. Its current is from 4 to 5 miles an hour.

The interior of Uruguay is bountifully supplied with water-courses of considerable length and volume. Of the smaller streams, the most important, from a commercial stand-point, is the Rio Negro. It traverses the territory of Uruguay from its sources in the hills called Santa Tecla, in Brazil, to a point near the town of Mercedes, where it pours its waters into the Uruguay—a distance of 463 kilometers. It bisects the country, nearly half of the surface of which it drains, and is navigable for small boats 55 miles from its mouth. Besides the Rio Negro, thirteen other streams of more or less importance make Uruguay well supplied with small water-ways: the Dayman (127 kilometers) and the Queguay (186 kilometers), both tributaries of the Uruguay; the Tacuarembo (200 kilometers) and the Yi (217 kilometers), which flow into the Rio Negro; the Yaguaron (134 kilometers) and the Tucuari (129 kilometers), which empty into the Lake Merim; the Olimar Grande (131 kilometers), the Cebollati (152 kilometers), the San José (149 kilometers), the San Salvador (82 kilometers), the Santa Lucia (150 kilometers). All of these rivers are for distances of from 15 to 30 miles above their mouths navigable for small boats. Judicious expenditures in dredging would doubtless much improve all these water-ways and make them useful adjuncts of the railway system now gridironing the country.

RAILROADS.

And this brings us to a consideration of an agent that is daily working a transformation in the interior of the land, and which will shortly open up those portions of the country which, though geographically near, are practically, on account of the absence of adequate means of transportation, very remote from the sea-board. Starting with Montevideo as a terminal point, we now have rails laid and trains running regularly thence to Paysandú via Paso de los Toros, a distance of 517 kilometers. This is the Central Uruguay Railroad. From Paysandú northward a line called the Midland Railroad is being constructed to Salto, which city it is expected to reach in October of this year. Already it has been opened for a distance of 148 miles, but 47 miles remaining to be built. The Northwestern of Uruguay Railroad is in operation, skirting, like the Midland, the Uruguay River from Salto to a point on the Cuareim River above Santa Rosa, opposite the terminus of the Brazil Great Southern Railroad. This latter line runs thence on through the western part of the fine Brazilian province of Rio Grande do Sul as far as Itaqui, a distance of 110 miles. The two railways, it is hoped, will speedily be connected by the construction of an international bridge over the Cuareim River, a project that has long been delayed by objections sprung in the Brazilian Legislature. At an early day there will be a grand trunk line formed of these present fragments, extending northwest from Montevideo to Itaqui (Rio Grande do Sul), trending in the same general direction as the Uruguay River and exactly paralleling it from Paysandú northward. The Brazil Great Southern is pierced at Uruguayana, a Brazilian town on the Uruguay River midway between Santa Rosa and Itaqui, by a railway, which, running westward a distance of 378 miles from Porto Alegre, on the Atlantic, traverses the entire state of Rio Grande do Sul, and gives its products an outlet to the sea-board. The Brazil Great Southern is looking to extend its line, and has just received a concession from the Government to build from Itaqui to San Angelo, a distance of 218 miles. A concession has also been granted by the Brazilian Government for a line from Itararé, on the Sorocaba Railway, to Santa Maria de Boca Monte, on the Rio Grande do Sul Railway. These concessions have been granted in order to insure the retention of the splendid province of Rio Grande do Sul, whose adhesion to the new order of things at Rio de Janeiro is considered most desirable. Upon the completion of these lines Montevideo and Rio de Janeiro will be connected by rail, while spurs thrown out to the eastward of this central line will place all that section of fine agricultural lands from 20° to 35° south latitude within 200 miles of the sea-board. Such a line, further south than the Porto Alegre Railway and pointing westward, is now in operation from the city of Rio Grande do Sul Bagé, a distance of 174 miles.

Returning to Uruguay, the scope of proposed railway extension in this Republic may be seen from the modification made in January, 1888, of the railway law of 1864, which former statute names the following lines as forming the general plan of the railways of the country:

(1) Central Railway, from Montevideo to Rivera, a town on the boundary line of Uruguay and Brazil, a distance of 573 kilometers. This railway is now under construction from Paso de los Toros northward to Rivera, the 273 kilometers from Montevideo to Paso de los Toros being built and forming part of the route to Paysandú above mentioned.

(2) Railway from Montevideo to Colonia, an important city on the Uruguayan side of the Plate, almost directly across from Buenos Ayres, from which it is distant 30 miles. Colonia is 130 miles from Montevideo. A party of American gentlemen, well known in railway circles in the United States, is now here ready to build this road; but there seems to be some hitch in the negotiations in London, from which market the money to construct the road is forthcoming.

(3) Western Railway, from the Twenty-fifth of August (name of a place) to New Palmyra (Nueva Palmira), with a branch to Mercedes and Independencia.

(4) Northeastern Railway, from Montevideo to the frontier of Brazil, by the Cuchilla Grande as far as Melo, with branches to Artigas, Treinta y Tres, and Minas. Distances—Montevideo to Nico Perez, between which places construction is now progressing, 305 kilometers; from Nico Perez to Melo, 160 kilometers; Melo to Artigas, 90 kilometers.

(5) Eastern Railway, from Montevideo to Lake Merim, with branch to Minas, between Pando and Maldonado, so long as the Northeastern Railway is not carried out. The line is now completed to, or nearly to, Minas, a distance from Montevideo of 123 kilometers. Railway from Salto to Santa Rosa, with branch from Isla de Cabellos to San Eugenio. This branch, 114 kilometers in length, as projected, is now in process of construction.

To sum up, there are railway lines in Uruguay built, 756 kilometers; in construction, 801 kilometers; projected, 2,130 kilometers.

When these various lines shall have been completed and the whole brought into some harmonious system, with a consequent reduction of rates and concerted time-tables, little Uruguay, not larger than the Indian Territory, will not need to concern herself more with railway extension for a decade or two, when the demands of an increased population and a larger production may again be expected to give another impetus to railway enterprise. The projects now on hand, when carried out, will be entirely adequate for all needs, not only of the immediate present, but for all requirements of the future for a considerable time to come. We hear it suggested now that dull times have—as was inevitable—succeeded the wild inflation of the last few years, and all business is quiescent; that the present programme of railway building does not respond to a present demand—in other words, that the future has been, to some extent at least, discounted. May not such croakers, who, bereft of the gift of foresight, never see or gauge the future until it has become the present, be reminded that railways have ever been the forerunners of progress and civilizing influences, and, as agents in populating and developing the latent resources of rich but uncultivated countries, are incomparable?

POPULATION.

Passing on to the character and distribution of the population of the country, we shall find that the provinces (states, rather, inasmuch as they form constituent parts of a federated republic), while they do not differ so much from one another as those of Gaul, as described by Cæsar, are yet very unequal as regards size, distribution of population, and that progressive development which marks the transition stage between Gauchoism and civilization. As one would naturally expect, the bulk of the population is found now, as it always has been, in the provinces bordering on the ocean, the Plate, and the Uruguay River, while the rich, cheap, and easily cultivated lands of the interior have been neglected. These riverine states form sections quite distinct from the wild, sparsely settled camps of Durazno and Tacuarembo, though I am told that in all the provinces of Uruguay, save Montevideo, there are portions in which primeval nature still dominates man and asserts her ancient sway. These remoter parts of the country, new to-day, although known to the world before Jamestown was founded or the Pilgrims landed at Plymouth, still well illustrate scenes in Sarmiento's "Civilization and Barbarism"—a state of society from which, happily, a considerable portion of his own country (Argentine Republic) has emerged.

The following table shows the size and population in 1888 of the different departments:

Province.	Capital.	Area.	Population.
		Sq. miles.	
Salto	Salto	4,270	30,592
Artigas	San Eugenio	3,855	10,000
Paysandú	Paysandú	4,490	43,637
Rio Negro	Independencia	2,870	
Soriano	Mercedes	3,125	26,673
Colonia	Colonia	1,925	36,400
San José	San José	2,359	37,409
Flores	Trinidad	1,531	
Montevideo	Montevideo	225	204,872
Canelones	Guadalupe	1,610	70,162
Maldonado	Maldonado	1,391	35,058
Rocha	Rocha	3,757	
Cerro Sargo	Melo	5,058	59,561
Treinta y Tres	Treinta y Tres	3,232	
Minas	Minas	4,230	
Tacuarembo	San Fructuoso	7,120	42,373
Rivera	Rivera	3,330	
Florida	Florida	4,102	27,967
Durazno	Durazno	4,850	23,143
Total		63,330	648,297

The population ranges from 308 per square kilometer in the province of Montevideo (a figure large beyond all proportion, on account of the city) to 0.88 in the province of Artigas.

The following table shows the distribution of population per square kilometer in 1888:

Provinces.	Number of inhabitants per square kilometer.	Provinces.	Number of inhabitants per square kilometer.
Montevideo	308.5	Rio Negro and Paysandú	2
Canelones	14.7	Durazno	1.6
Colonia	6.4	Minas, Cerro Sargo, and Trenta y Tres.	1.6
San José and Flores	3.2	Salto	2.4
Soriano	2.8	Tacuarembo	1.3
Florida	2.3	Artigas	0.88
Rocha and Maldonado	2.3		

Of this population, it is estimated that 68½ per cent. of the land-owners in the department of Montevideo are foreigners; of the outside or "camp" departments, the foreign land-owners amount to 47.1 per cent. If these figures be correct, nearly or quite half the lands of the country are in alien hands. It may be mentioned here that the agitation going on in the neighboring states of Brazil and the Argentine Republic regarding the enactment of compulsory naturalization laws is now exciting attention in the Congress of Uruguay, the contention of the proposers of such action being that those who enjoy the bounty should bear some of the burdens of the State. The privilege of citizenship, which must be assumed by a large part of the immigrants at one time or another, is not favored by its proposed beneficiaries, the specter of possible compulsory military service in their adopted country, when once their names are enrolled among its citizens, rising to plague them.

WOOL.

With regard to the wool industry, I am, fortunately, able to speak with entire confidence and to quote figures that are incontestibly correct, having been greatly aided in this inquiry by Mr. B. Lorenzo Hill, an American gentleman long resident here, and whose observations on this subject, on account of his intelligence and wide experience, are of very exceptional value. Mr. Hill's contribution, in the shape of remarks and answers to categorical questions submitted to him, is herewith inclosed and made a part of this report.

While Uruguay is now, as it always has been, essentially a pastoral country, very little attention has been paid to scientific cattle or sheep farming. The cheapness of the land and of the herds and flocks, added to the unsettled state of the country and insecurity of life and property, have contributed, until lately, to perpetuate this condition of things. With rare exceptions, the original Spanish breed introduced more than a hundred years ago has been continued, and that without any regard to its proper preservation by selecting and leaving in herds the best animals for reproduction.

Formerly cattle farming was the chief industry in Uruguay; later attention was turned toward sheep. Those bred are chiefly the native, English, merino, and mixed or Mestizo. The native sheep are fast disappearing. They have long, straight wool greatly resembling hair. The English breed are mostly of the Lincoln type, Southdown, and Romney Marsh. The merinos are Negrettis, bred in Germany from Spanish stock. The Mestizoes are breeds produced by crossing the various varieties.

It is true that the wool industry is depressed here at this time, owing to the fall in price in foreign markets. It is the general opinion, too, that there are fewer sheep in the country than there were a few years ago. The number of sheep was estimated to be 18,000,000 in 1874; in 1885 an authority put the number then at 10,000,000. Mr. Hill estimates the number now at 12,000,000, a falling off, in his judgment, of 30 per cent. since 1888. One-fourth of the total number of sheep in the Republic are, according to Mulhall—not a very trustworthy authority—in the provinces of San José, Colonia, Soriano, and Florida.

The average annual wool clip is 3½ pounds, or half a pound less than in Europe. In estimating the amount of the wool clip in bales, it must be remembered that the Australian bale weighs 355 pounds, the Cape bale 270 pounds, while the river Plate bale weighs 875 pounds.

WHEAT.

Although the Government publishes annually a bulky statistical summary, statistical information that cuts close is scarce. There are, perhaps, 500,000 acres under wheat. About all that is certainly known concerning the product is the amount exported, and which, therefore, passes through the various custom-houses. No one has any idea as to the amount of the local consumption, or what part of the crop is smuggled across the frontier into Brazil. The export and import of wheat and wheat in the form of flour during the last four years has been as follows:

Table showing exportation of wheat from Uruguay.

Whither exported.	1883.		1884.		1885.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Kilograms.		*Kilograms.*		*Kilograms.*	
Argentine Republic	25,440	$1,208			238,560	$11,332
Brazil	5,131	220	68,952	$2,764	153,630	6,302
Cape of Good Hope					900	36
France	26,040	1,042			801,722	32,069
Italy					365,738	14,629
Paraguay					7,440	353
Spain	8,400	336	10,580	423	435,600	17,424
Other ports	9,680	208			6,280	273

Whither exported.	1886.		1887.	
	Quantity.	Value.	Quantity.	Value.
	Kilograms.		*Kilograms.*	
Argentine Republic	166,560	$7,912		
Belgium	96,348	3,854	43,440	$938
Brazil	506,775	20,359	1,120,000	50,762
Cape of Good Hope	290,098	11,604		
England	935,592	37,344	17,696	7,078
France	11,582	4,615	271,322	10,853
Italy	511,748	20,470	1,117,326	44,693
Spain	382,974	13,319		
Other ports	456,196	4,106	148,080	5,923

NOTE.—1 kilogram=2.2046 pounds.

Table showing exportation of flour from Uruguay.

Whither exported.	1883.		1884.		1885.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Kilograms.		*Kilograms.*		*Kilograms.*	
Argentine Republic	....	....	....	....	76,470	$4,282
Brazil	21,960,033	$12,291	1,158,798	$64,893	6,034,256	337,364
Chili	....	....	....	....	4,600	258
France	....	....	8,372	469	900	51
Italy	28,584	1,599	1,150	64	28,810	1,613
Spain	82,778	4,636	....	....	....	....
Other ports	2,622	147	3,200	180	39,790	2,128

Whither exported.	1886.		1887.	
	Quantity.	Value.	Quantity.	Value.
	Kilograms.		*Kilograms.*	
Argentine Republic	3,860	$216	3,400	$190
Belgium	6,900	386	....	....
Brazil	11,813,532	663,271	8,634,316	487,760
Chili	552	31	....	....
Cuba	2,188	123	....	....
France	11,040	618	....	....
Italy	20,340	1,139	23,920	1,340
Spain	22,172	1,242	....	....
Other ports	62,284	3,488	9,665	521

Table showing imports of wheat into Uruguay.

Whence imported.	1883.		1884.	
	Quantity.	Value.	Quantity.	Value.
	Kilograms.		*Kilograms.*	
Argentine Republic	1,160,339	$67,614	357,791	$16,172
Brazil	45	3	....	....
Chili	24,450	1,019	57,750	2,968
Italy	....	....	300	13
Spain	....	....	83	4
United States	27,000	1,126	....	....

Whence imported.	1885.		1886.	
	Quantity.	Value.	Quantity.	Value.
	Kilograms.		*Kilograms.*	
Argentine Republic	....	....	800	$25
Brazil	....	....	600	24
Chili	....	....	1,329,440	68,832
Italy	2,719	$87	....	....
Other ports	15,406	733	....	....

Table showing imports of flour into Uruguay.

Whence imported.	1883.		1884.		1885.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Kilograms.		*Kilograms.*		*Kilograms.*	
Argentine Republic	6,636	$411	18,200	$1,365	915	$69
Brazil	17,203	1,158	13,275	1,165	22,981	1,723
Italy	4,487	299	....	....	....	....
United States	9,844	656	35,627	2,678	....	....
Other ports	....	....	3,276	255	....	....

Importation into, and exportation from, Uruguay of wheat and flour.

IMPORTS.

Years.	Wheat.		Flour.	
	Quantity.	Value.	Quantity.	Value.
	Kilograms.		*Kilograms.*	
1880	4,990,382	$314,659	191,481	$12,775
1881	131,686	6,976	21,194	1,407
1882	8,823,854	544,306	779,265	74,624
1883	1,211,834	69,762	38,171	2,524
1884	416,024	19,159	70,378	5,465
1885	18,125	820	33,896	1,792
1886	1,330,840	63,881	28,782	2,147
1887	159	8	10,557	632

EXPORTS.

1880	1,853,370	97,091	928,440	72,836
1881	2,401,106	116,350	2,173,426	121,712
1882	166,905	7,489	984,908	53,139
1883	74,691	3,019	2,309,973	129,373
1884	79,532	3,187	1,171,520	65,606
1885	20,009,870	82,418	6,174,926	345,796
1886	3,459,673	123,583	11,942,868	670,514
1887	2,717,864	120,247	8,671,301	489,813
1888	10,147,553	415,570	15,764,826	883,392
1889	1,932,277	95,934	....	....

The importation of Argentine wheat has assumed such proportions this year as to excite alarm among Uruguayan wheat growers, and this uneasiness has of late been reflected in vigorous editorials in the public press. From March 1 to June 10, a period of three months and ten days, 2,685,337 kilograms of Argentine wheat passed through the custom-houses of the Republic. How great an increase this is over other years, and how portentous a menace it is to husbandry on this side of the Plate, will be evident when we compare the figures for 1887 and 1888. During the entire year 1887 the importation of Argentine wheat amounted to 159 kilograms; 1888, 185 kilograms. The importation of wheat in the form of flour from March 1 to June 10 was 10,264,167 kilograms, against 10,557 kilograms in 1887 and 860 kilograms in 1888.

This great increase in importations, extending in like ratio to potatoes and corn, is caused by the failure, almost total, of the crops here last year, while the Argentine yield has been so large that there have not been sufficient facilities to transport it to Europe. Added to this the purchasing power of the paper peso has fallen so low that the Argentines have found a large margin of profit in paying for raising and transporting their grains in depreciated paper and selling it here for gold or paper issues payable on demand in gold at par. The fear is prevalent here that, inasmuch as grain is now pouring in in undiminished quantities, the deficit in last year's crop will not only be filled up, but that a stock will remain here so great as to depress the price of, and demand for, the crop now growing. "Of what avail," says a leading paper to our agriculturists, "is it that the present crop, which covers a wider breadth of land than ever before, promises unusually well, if when, harvest over, they send their products to home markets glutted with foreign grains, there to compete with the overflow of Buenos Ayres and Santa Fé grain fields?" Those two provinces of the Argentine Republic, especially the latter, owing to the low price of lands and labor and their facilities for embarking products, are able to offer, and do actually offer, their cereals at prices that are ruinous to the agricultural people of Uruguay. The production of wheat and maize is much cheaper there than here, and freight charges from Paraná and Rosario are not higher than the Uruguayan farmer or the colonists of the Swiss and Valdense colonies pay to the railways and river boats for transportation.

The operation of the tariff on cereals is thought to aggravate the situation. The amount of the duty is regulated according to a sliding-scale, by which the imports of wheat, corn, and flour pay customs duties, which vary as the quotations in the market. Wheat is taxed as follows, to wit: When worth $4 per 100 kilograms, it pays $1.25 per 100 kilograms; when worth $4 to $5, $1; when worth $5 to $6, 75 cents; when worth $6 to $7, 25 cents; when worth $7 to $8, 12½ cents; free of duty when worth over $8 per 100 kilograms. Flour pays a duty as follows: Thirty-two and a half per cent. when wheat is worth $2.40 to $3.20 per 100 kilograms, 27½ per cent. when wheat is worth $3.21 to $4.00, 22½ per cent. when wheat is worth $4.01 to $4.80, 17½ per cent. when wheat is worth $4.81 to $5.60, 15½ per cent. when wheat is worth $5.61 to $6.40, 12½ per cent. when wheat is worth $6.41 to $7.20, 10½ per cent. when wheat is worth $7.21 to $8.00, 7½ per cent. when wheat rules at $8.01 and above that figure.

The object of this movable scale is that, when the price of cereals is high in this market—a condition which indicates scarcity—importations shall be stimulated; on the other hand, when the price is low here, which argues that the home crop is abundant, the rate shall be in inverse ratio, to prevent the competition here of foreign cereals. But the actual operation of this legislation has "turned to folly the wisdom of the wise," and the sliding-scale in the tariff schedule has disappointed the expectation of its movers. In practice it works thus: Let us suppose that the current price of wheat in the market is $4 per 100 kilograms. The duty then, measured as above, is $1.25 on the same quantity of foreign grain. An importer has a vessel in port loaded with Santa Fé wheat. He goes into the market here and, by a few rapid purchases, raises the price of native grains to $5 or $6 per 100 kilograms. He then obtains a certificate of the sales of the day, which he presents to the custom-house authorities, and enters his cargo at the price which has ruled in the market on that day. The small loss entailed in "bulling the market" is repaid a hundred-fold by the diminution in the customs on an entire ship-load. As a result of these abuses, it is likely that we shall soon have here, as in the Argentine Republic, a specific duty placed on imports of foreign grains. Since January 30, 1888, there has been no export duty on raw materials, products manufactured or otherwise of the country, except unwrought stone, sand, and cattle on the hoof, which go out by the frontier.

The answers to questions by Mr. B. Lorenzo Hill, herewith annexed, are an exceedingly valuable contribution. The estimates are those of a most competent and conservative judge, and are the only ones I have ever seen.

The future of wheat growing.—Before Uruguay can come into the markets of the world as a strong competitor in cereals, great changes must ensue here. The country must become the home of frugal, saving people. To-day it is essentially a pastoral land. Its inhabitants take far more kindly to herding cattle and sheep than to the steady, laborious toil of agricultural laborers, and the shiftless, half-civilized life of the former is far more attractive to them. No one can at all understand these countries, if he does not constantly bear in mind that they are in the transition stage between civilization and barbarism; that the cities, with all their luxurious display, have been built up at the expense of the countries at large, whose needs and necessities have required no such expenditure of national wealth. Montevideo vies, in many respects, with cities of like size in any part of the world; and in no city of the United States of the same population can you see shop-windows filled with such rare and costly fabrics, in form and design of the latest Parisian fashion. A ride of a few miles out of the city introduces one to a country of mud huts, with thatched roofs and dirt floors, inhabited by groups of half-dressed, poorly nourished peons, with here and there the *estancia* house of some rich and powerful *estanciero* (ranchman).

The existing tenure of lands is also a great evil. The common people do not own, or care to own, lands. The large owners (*estancieros*) live, part of the time, in a lordly way in Montevideo and other towns, and exercise a supervisory power over their estates much as the lord or suzerain in feudal days. The *capataz*, or manager, with his retinue of peons, directs the domestic economy of the *estancia*. These *estancieros* have in the old turbulent times, in one way or another, got hold of, in many instances, vast tracts of wild lands, which have, because of their rise on the advent of civilization, enriched their owners. Enjoying the fruits of their patrimony in vulgar ease, they are not in favor of a newer order of things, which will surely follow, when the man who holds the plow owns, as in France and the United States, the land his plowshare turns.

There can be no doubt that a change is gradually coming over the country, and that the evolution from pastoral to agricultural pursuits is becoming well marked. *Estancias* (ranches) are being divided up into *chacras* (small farms). The change is, however, retarded seriously by the lack of State lands to give to immigrants and by the cause adverted to above—the indifference of large landed proprietors. But the judgment of most men in whose opinions I should feel confidence is that this change may be expected to be very slow. Certainly, a statement that the people are giving up cattle and stock raising and going in for grain to any extent would excite a smile here.

All lands, except those immediately bordering on the few lines of railway spoken of or on the ocean or the Uruguay River, are, in any rational sense, remote from markets. The "roads" are mere beaten paths, rough and uneven at best, and almost impassible for wagons and carts during seasons of rain. The wagons—clumsy *carretas*, with great wooden wheels 6 or 8 feet high, and drawn by yokes of lazy oxen—are the vehicles of transportation in the interior. Of course, there is a great lack of bridges. The railway freights are very high, and no warehouses of any sort exist. On all these accounts the cost of getting grain to a market, whence it may be exported, although the distances are all short, is very great. The Minnesota or Dakota farmer's grain pays a very small sum for transportation 1,500 or 2,000 miles to the sea-board compared with the cost of getting grain to Montevideo or Paysandú from points 100 miles in the interior. Until the country shall be thoroughly gridironed with rails, the production of wheat on a very large scale would seem to be impossible.

These are not countries of "wonderful" resources. The agricultural and pastoral wealth here is not supplemented by mineral deposits, petroleum wells, natural gas, coal, etc. Besides, the people have no aptitude for mechanical pursuits. So that, unless some new motive power shall come into use, they are likely for decades to remain producers of raw materials, which will return here in the shape of manufactured goods, after twice crossing the ocean and being wrought into finished fabrics by foreign capital paying wages to foreign labor. The tariffs, though high and in some cases above the revenue point, are yet tariffs for revenue, and not laid with the intent to foster native manufacturing enterprises or to control the home market for domestic goods. Politically independent, they promise to be commercially dependent for half a century to come.

M. de Lavergne, in the "Cyclopedia of Political Science," says:

> Give me good politics and I will give you good agriculture. Agriculture can really flourish only in a country where person and property are respected; where taxes are apportioned equitably and spent with economy; where the good condition of the means of communication increases the extent of the market—in short, where liberty, justice, and peace prevail."

This writer then compares the state of agriculture in England, with her foggy climate and wet soil, and Turkey, with her finest of climates and richest of soils. I think we may say of Uruguay that in all parts of the country a tolerable security exists for life and property. The amount of revenue raised by direct taxation is not excessive. Taxes are paid on declarations of valuations of property—always deficient—made by proprietors subject to official revision, which is seldom exercised. The tax rate is $6.50 per thousand, and is never collected on the actual value of the property, landed or otherwise, and really is a low rate. The large amount of revenue raised by customs duties—about $11,000,000—is, of course, in some sense a tax on production. As far as Government expenditure is concerned, it may be said that public works to facilitate the movement of men and products over the face of the country have been here, as elsewhere in South America, postponed for the construction of edifices, theaters, etc., which, however much they may embellish and beautify the centers of population or appeal to æsthetic taste, are of far less utility to the nation at large than the improvement of means of communication and the bridging of impassible creeks. And what influence these latter wield in industry is indicated by the fact that the reduction in the cost of transportation from the American wheat fields beyond the Mississippi to the sea-board, and from the sea-board to Liverpool, has increased the net productiveness of those fields to a degree equal to the addition of several bushels an acre to the crop.

NEWSPAPER EXTRACT.

The recent discussion about the cargo tariffs on the Northwest of Uruguay Railroad has produced its result in the publication of a new tariff, in which reductions varying from 5 to 26 per cent. are made on agricultural produce, and the minimum quantity charged also considerably reduced. At the same time publicity is given to a letter addressed by the managing director, Mr. Humphrey Chamberlain, to the minister of Government, from which we translate the following sentences:

"These reductions are justified by the promises Your Excellency has made of improving the means of transit between the more distant parts of the country districts and the railway, thus reducing the enormous cost of transport by cart between the stations and the districts served by them. Furthermore, the progressive ideas that Your Excellency has kindly expressed to me relative to colonization and subdivision of pastoral lands into agricultural farms increase the confidence of the management in the future of the country.

"The instructions that we receive from the directorate of the railway company relative to tariffs, etc., are very clear. The first care is to preserve the present value of the shares and the credit of the company without reducing the modest dividend that we earn. That being assured, we have orders to do every thing possible to aid the development and prosperity of the country by means of moderate tariffs, and of facilities offered to commerce and to the centers of production and the general public.

"Every immigrant established in the vicinity of the railway is a further guaranty of increased production and, therefore, of future reductions in our tariffs.

"We are on the eve of launching into the unknown, opening large extensions of the line to public service. As soon as we know the effect of these extensions on the general interests of the company, we will again be able to busy ourselves with the general tariffs, reducing them in every thing compatible with our first duty, which is to assure the share-holders against diminution of the value of their property. I again promise the minister to do every thing that my duty will allow me towards co-operating in his progressive plans."

I am not able to give figures in the matter of the increase in the importation of agricultural machinery, but am certain that there has been an increase, as suggested.

A firm dealing in agricultural implements writes me:

> There is, no doubt, a greatly increasing demand, both in Uruguay and in the Argentine Republic, for agricultural machinery, as we ourselves, as large importers of American harvesters and binders, can testify. Unfortunately, however, the last season's crop of cereals was a great failure here, owing to the want of rain at the right time, and the disposal of harvesters was very limited in consequence. * * * There is, no doubt, each year a large addition made to the areas of land under cultivation in both of these republics, and already the export of Buenos Ayres, Rosario, and Santa Fé is very considerable, as the returns will show.

I can not, however, discover that agricultural implements have been received here of late in such quantity as to excite comment even among those merchants who handle this class of goods.

IMMIGRATION.

The Government, not daunted by the heavy financial clouds which darken the horizon with almost inky blackness, is at this moment manifesting unusual interest in the agricultural development of the country through the influx of immigration. For a half-dozen years fitful efforts have been made to divert to Uruguay her proportional share of the great current which has set with such force to the river Plate. Until this year, the supposed superior attractions of the Argentine Republic have enabled her to obtain the lion's share of this great movement from southern Europe. The following figures show that immigration to the Argentine Republic has, on account of her grave financial situation, dwindled away to almost nothing:

Month.	Number of immigrants.	Number of emigrants.	Difference in favor of immigrants.
1889.			
January	25,420	5,763	19,657
February	31,639	8,124	23,515
March	21,831	7,978	13,853
April	21,655	7,271	14,384
May	21,953	8,299	13,654
June	22,091	7,145	14,946
Total	144,589	44,580	100,009
1890.			
January	19,069	4,194	14,875
February	15,127	3,620	11,907
March	14,287	5,202	9,085
April	13,293	6,822	6,481
May	11,923	9,126	2,797
June	9,183	8,544	639
Total	82,282	37,498	45,784

During the year 1889 there arrived in the Argentine Republic nearly 300,000 immigrants. There arrived in the first six months of this year 83,282, against 139,788 in a like period in 1889, a diminution in the flow of 56,506 immigrants, or at the rate of over 100,000 for the whole year. According to these figures, the immigration has diminished one-third as compared with last year; besides, a large emigration must be added. In the last six months this has amounted to 37,498 persons, against 20,864 for the same period of last year, an excess over last year's figures of 16,634 persons. From all this we gather that, while immigration has fallen off one-third as compared with the first six months of 1889, emigration, on the other hand, has increased over one-half. Until in June just past, the figures nearly balance, the excess of those coming over those going having fallen away to the insignificant figure of 629.

The statistics of Uruguay present a decidedly different aspect. In 1886 the balance in favor of immigration was 460; 1888, 15,872; 1889, 25,494, an excess of 60 per cent. over 1888; first three months of 1890, 5,849, as against 1,361 for same period the year before. These figures are for immigration from beyond the sea, and would be considerably augmented by the arrivals from the Argentine Republic, for at one time an exodus to Uruguay and southern Brazil from the Argentine Republic was threatened. The character of this immigration may be seen from the following classification, according to nationality, of the new-comers in 1889:

Italians	15,047
Spaniards	4,747
French	1,091
Brazilians	631
Germans	319
English	314
Austrians	378

The Italians, as ever, are in so great a preponderance as to suggest a vision of days not far remote, when these river Plate countries shall become Italian commonwealths. According to a paper recently published by the Italian Geographical Society, of Rome, the bulk of agricultural immigrants go to the provinces of Santa Fé and Buenos Ayres, in the Argentine Republic; São Paulo and Rio Grande do Sul, Brazil; and California, in our own country. The same authority remarks that in all these countries they earn more than at home—three or four fold in the United States and Australia, double in the Argentine Republic and Uruguay, and something less than double in Paraguay and Central America. It is further stated that the countries which offer the most favorable conditions for Italian emigration are the Argentine Republic, Uruguay, certain provinces of Brazil, and the United States. Peru and Paraguay should, I think, be included in this list; certainly the latter.

The river Plate countries have seen no days so dark as these since 1880, the year when the new order began, and it is probable that during the remaining months of 1890 there will be an almost entire cessation of the flow of immigration. We may expect this lull to be but temporary, and, when the shaking down has ended in general liquidation, the stream of immigration must turn this way again, to find the comfort and abundance denied at home.

I append the following on immigration from a recent issue of the River Plate Times:

But whatever increase may have taken place in the general population, it can not be truthfully attributed to "highly favorable conditions to immigrants," for the simple reason that, until very recently, the question of immigration was shamefully neglected, and what little was done in this direction was more due to private enterprise than State aid. Within the last two or three years at the most has Government attention been seriously turned to this indispensable means of developing the country, and the matter is still but incompletely organized. Only recently we had to chronicle the order to check the flow of assisted immigrants, because the means of receiving them and disposing of them afterwards were so imperfect.

In saying this we do not wish to raise any misunderstanding as to the suitability of the country as a field for immigrants. We have always consistently upheld the advantages and attractions of this Republic, which we consider, for such a purpose, far superior to the greater part of the Argentine Republic. With a very healthy and temperate climate and a fertile and well-watered country, there are few parts of the globe which can offer superior attractions. And, once the difficulties of differences of language and race are overcome, there is no place more suitable for British energy and brains.

As to the conditions offered, until the revision of the present law on the subject is concluded, which we hope will be before long, it is difficult to speak of them with certainty. Briefly, however, we believe the more important details to be as follows: Assisted passage out, to be repaid on easy conditions; free disembarkation, free board and lodging for a certain period after arrival; exemption of duty on personal property, luggage, utensils, tools, etc.; the finding of employment for agriculturists and artisans, and free passage to the locality of the same; in certain cases, the granting of a plot of land, buildings, domestic animals, and necessary tools and utensils, to be paid for in easy installments; exemption from rates and taxes for ten years on colonists cultivating a fixed area of land. Many of these benefits are also extended to those preferring to pay their own passage out.

Even greater advantages are offered, however, by the private colonizing companies, such as the National Company of Public Works, Banco Constructor Oriental, that recently started in connection with the Northwestern Railway Company, and others we can not enumerate just now; also, by landed proprietors instituting colonies on a smaller scale. The particulars of these may easily be obtained on application in the proper quarters, and there is the additional attraction that many of these colonies are already firmly established and on the high road to prosperity.

At present, it must be acknowledged, the amount of British immigration here is very small and entirely casual, nor are we aware of any attempt to found a distinctly British colony. We believe there is a small Scotch colony somewhere in the interior, but it is so obscure that we are entirely ignorant of its whereabouts. There is a very flourishing Swiss colony, but the rest of the colonists consist, to the extent of fully 90 per cent., of Italians and Spaniards. All the State-assisted immigrants are Italians; in fact, we believe the only office yet established for the official dispatch of immigrants is at Genoa.

AGRICULTURAL COLONIES.

A word in regard to the various agricultural colonies. Of these, the most important are the Vaudois and Swiss.

In 1856 some Vaudois families, banished in consequence of their heresy, resolved to emigrate, and proceeded to Montevideo. They first established themselves in the department of Florida.

An association, the members of which were almost all of them natives of Uruguay, formed themselves into a society to protect these families. Four leagues of land were purchased in the department of Colonia, which were divided into small farms of about 70 acres each, and most of the Vaudois families removed to this colony. Being well received by their neighbors and especially by the inhabitants of the little town of Rosario, the new colonists soon commenced to flourish. In 1860 there were only seven farms unlet of the eighty which were marked out, and the colony consisted of fifty-five families. After various changes, which it is needless to mention, the colony now forms an agricultural center, with an area of nearly 20,000 acres, containing 1,860 inhabitants. Eight schools are established in the colony, and Protestant worship is celebrated in French and Spanish.

The Swiss colony was founded in 1861 in the department of Colonia. Since 1878 it forms a district or section, in which is comprised the Quevedo and Spanish colonies. The Swiss colony comprises an area of nearly 15,000 acres, the Quevedo about 8,000 acres, and the Spanish over 16,000 acres. On this territory there are living 420 families of various nationalities, numbering 2,380 persons. The Paullier Brothers' colony, which is situated about two hours' drive from the town of San José, which is connected with the metropolis by a line of railway, has a total area of over 10,000 acres. The greater part of this reservation consists of land of excellent quality, with meadows naturally watered by numerous water-courses. More than 1,000 head of cattle graze on these, and of these 400 cows are milked daily, and their milk is made into cheese of the Gruyere kind, about 80 kilograms being produced per day. The whole of the lands of this colony are parceled out into small farms of from 100 to 200 acres each, which have almost all of them been sold at the price of about £1 5*s.* per acre, the purchase-money being paid off in five years. This system of colonization offers so many advantages that, in all probability, it will be adopted by the owners of vast tracts of land known by the name of "estancias." A colonist from Europe would easily meet with a couple of hundred acres of good land, watered by streams which never run dry, within a radius of 100 miles from Montevideo, at the rate of £2 per acre.

The Guaviyu colony, in the northwest, has 700 immigrants, 120 families; in the Sauce colony are 59 families of Swiss extraction; the Riachuelo colony, composed of Italians, is progressing. There are colonies, also, in Soriano, Rio Negro, and Paysandú. The last named had in 1884 1,396 inhabitants. The colony General Artigas counted in 1884 111 families, or 546 persons. In Maldonado are two colonies; Rocha and Minas, one each; in Salto, four. The colony Paullier, of San José, consisted in 1884 of 75 families, the majority Spaniards. This scheme of colonization under the law of October 8, 1887, if persisted in, will finally populate the country to such an extent that voluntary immigration may after a while cut some figure in the country.

COTTON.

I can furnish no data concerning the cotton industry. It has no past or present, and nobody predicts for it a future, in Uruguay. It does not appear in the list of exports. If it shall subsequently appear, after trial and experiment, that it can be successfully grown here, such investigation will be in the nature of a discovery. Reasoning *a priori*, there is, perhaps, no reason why it should not thrive in this latitude and in this soil, but as yet its culture has not been attempted. It is not even grown for domestic use, as in Paraguay. At any rate the country's greater relative advantage in the production of wool, hides, hair, and cereals will prevent for the present any great effort to grow cotton on a soil on which its success is very problematical, to say the least.

With Paraguay, however, the case is quite different. In her light, fertile, red soil the cotton-plant grows spontaneously, and I have the opinion of men who, on account of long experience as planters in our Southern States, ought to know whereof they speak that the cotton of Paraguay compares favorably with the lowland, sea-island cotton of the Carolinas, its long, silky fiber closely resembling that of this celebrated variety. Three varieties are cultivated in Paraguay—the *Gossypium herbaceum*, the *Gossypium vitifolium*, and the *Gossypium arboreum*. There is another variety still that gives a brownish silk, which is directly employed in weaving and in making the poncho; it is called the *Guarani nandypta* (red cotton). In all these varieties the threads are more or less white, and belong to the class of very long wool. Du Graty, writing in 1860, said that the cotton of Paraguay is a splendid product, and that the very long and fine fiber resembles the cotton of Brazil of the best quality. At this moment its cultivation has fallen to a pitiable figure. According to the statistics of 1886, there were but 15½ hectares of cotton, against 10,000 hectares in 1863. The great discrepancy is due to the fact that before the war the country was compelled to produce sufficient for its own consumption, while to-day, with open ports and vastly better means of communication, the introduction of the foreign manufactured article has killed the home industry. To immigration is reserved the task of restoring cotton to its proper place at home, and, if practicable, to make it a leading article of export. In 1887 the total production of the world amounted to 9,510,000 bales. Brazil has considerably increased her production, and yet the market demand is strong. Paraguay should become a producer of this staple for export.

RÉSUMÉ.

As a wheat-producing country Paraguay need not be seriously considered. Situated 1,000 miles to the north of its stronger neighbors, it is far better adapted to be a market-garden for Buenos Ayres, Rosario, and Montevideo than to compete with them in raising wheat. In soil and climate it is as Louisiana to Illinois. In 1863 1,895 hectares were under wheat. Very little land is now sown with wheat. In 1886 the importation amounted to 2,117,220 kilograms; in 1887, 1,898,569 kilograms, brought in to supply the Asuncion flour-mills mainly from the upper Argentine provinces. In 1886 the importation of flour (wheat has been relieved of duty on entrance) fell to 174,177 kilograms, and in 1887 the exportation of flour reached 77,000 kilograms, sent to Matto-Grosso.

I have now dealt as fully as the scanty data at my command enables me with wool, wheat, and cotton industries, present and prospective, of Uruguay, adding a few cursory remarks on Paraguay. The Paraná River, around which the inquiry suggested in my recent instructions turns, does not touch my district at any point. The great riverine provinces of the Argentine Republic—Buenos Ayres and Santa Fé, on the right, and Entre Rios and Corrientes (forming the first of two mesopotamias, of which the Republic of

Paraguay is the second), on the left—border on this mighty stream. They form a part of the great Argentine wheat field, an immense zone of arable lands extending from the southern limits of the territory (*gobernacion*) of Chubut (latitude about 42° S.) to the northern extremity of the province of Corrientes (latitude 27° 30′), so situated that no part of it is more than 300 miles from river or ocean base. Ten years ago there were of this region only 98,400 acres under the plow; to-day 7,313,000 acres are in cultivation, of which 345,940 are in linseed, 2,557,485 wheat, and 2,100,350 maize. This shows a gratifying increase, to be sure; but the whole area under wheat to-day is less than the average increment of area annually brought under cultivation in the United States. Agriculture, though far more advanced and with a much greater field for expansion compared with little Uruguay, is yet in its infancy in the Argentine Republic.

In conclusion, we may look to see these countries gradually loom up as competitors in the wheat markets of the world; but this will be the slow result of years, impeded by the low industrial efficiency of the immigration, the intractability of the mixed native race to the calm, sober, thrifty life demanded by agricultural pursuits, and the certainty that these governments will be at certain intervals involved in grave financial and economic, if not political, troubles.

RAIN-FALL.

Monthly quantity of rain-fall at Montevideo, Uruguay, from observations taken at the observatory of Colon, 1883–'87.

Month.	1883.	1884.	1885.	1886.	1887.	Average.
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
December	248	60.5	21.4	180.3	92.5	120.54
January	(*)	61.3	51.3	123.5	36.7	54.56
February	(*)	36.9	40.2	12.1	26	23.04
March	122.6	138.3	42.4	20.1	8	66.28
April	24	123.2	80	94	102	84.64
May	122.5	11	113.8	104.5	3.6	71.08
June	173.9	82.8	25	131.5	120	106.64
July	127.1	39.5	44.7	19	55	57.06
August	70.3	29.3	53	…………	128	56.12
September	55.2	162.5	42	108	45.5	82.64
October	89.6	22.4	195.2	28.3	62	79.50
November	117.4	35.5	96.9	47.5	43	68.06

* Drops.

Statement of the quantity of rain-fall at Montevideo according to the season.

Season.	1883.	1884.	1885.	1886.	1887.	Average.
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
Summer	248	158.7	112.9	315.9	155.2	198.14
Autumn	269.1	272.5	236.2	218.6	113.6	222
Winter	371.3	151.6	122.7	150.5	303	219.82
Spring	262.2	220.4	334.1	183.8	150.5	230.20
Total	1,150.6	803.2	805.9	868.8	722.3	870.16

Quantity of rain-fall in the year 1885, from observations taken at the observatory of Colon, near Montevideo.

Date.	December.	January.	February.	March.	April.	May.
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
1					22.4	
2	5.7			0.4	11.2	
3						
4		2		11.6		6.2
5		2.8		1.2		19.6
6				1		
7				3.6		
8		8.4		14.4		
9	0.2	12.5		3.2		
10				2	8	
11			5.6	2		
12						
13		3			16.4	
14	1,2				22	
15						
16			0.4	1		
17	0.4					
18						24
19		1.6	1			36
20						1
21	12		1.2			16
22			32			8
23	0.3					
24						
25						0.6
26						
27						
28						2.4
29		21				
30				2		
31	1.6					
Total	21.4	51.3	40.2	42.4	80	113.8

Date.	June.	July.	August.	September.	October.	November.
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
1	23		0.1	0.2		
2		15.5				
3			0.5			
4		11.5				
5				2.5		
6					26.8	
7				1.5	8.6	
8	1		0.6		21.6	
9		13.2			12	
10			1.3	7.8	65	
11			3.5	14.3		
12	1		1	0.7		
13		4.5				4.5
14						
15						
16						
17					8	
18			2.5	9	5 6	
19			4			
20			3.5	0.6		
21						

Quantity of rain-fall in the year 1885, etc.—Continued.

Date.	June.	July.	August.	September.	October.	November.
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
22			6			36
23						
24						14.4
25						
26						
27				0.2	39.2	42
28			8		8.4	
29			14.4	1.8		
30			7.6	3.4		
31						
Total	25	44.7	53	42	195.2	96.9

FRANK D. HILL,
Consul.

UNITED STATES CONSULATE,
Montevideo, August 20, 1890.

SHEEP AND WHEAT IN URUGUAY.

[Inclosure in Consul Hill's report.]

GUAYCURÉE, *July 15, 1890.*

DEAR SIR: I have the pleasure of handing you answers annexed to your questions regarding rural productions and industries of Uruguay, or as nearly as the very deficient statistical data of this country permits.

SHEEP AND WOOL.

(1) The number of sheep in October, 1889, was estimated at 12,000,000, or, say, 30 per cent. less than in 1888.

(2) The present value of sheep (general flocks as they run) is from $1.60 to $2.40 each.

(3) The quantity of wool clip in 1889 was estimated at 42,000,000 pounds.

(4) The classes or qualities of wool were merino and English, and their cross, called mestizo.

(5) The value of clip in 1889 was, say, 17 cents per pound all round, or $714,000.

(6) It was exported to France, Germany, England, and a small portion to the United States.

(7) Neither sheep nor wool are ever washed here.

(8) The loss by washing is from 25 to 30 per cent.

(9) The loss by carding is from nothing up to 10 per cent.

(10) Foot-rot is common only in very wet seasons.

(11) Scab is quite common, particularly in wet seasons.

(12) Only the fine or breeding flocks are storm-protected by sheds or otherwise.

(13) The law obliges curing, but not killing, scabby sheep.

(14) The average yield of wool per sheep is about 3½ pounds all round.

(15) The percentage of dirt and grease in wool is from 25 to 30 per cent.

(16) Wool is sold both to local dealers and to European buyers that come yearly.

(17) The grade of wool has been improving very considerably the last few years.

(18) Foreign sheep are being introduced, not extensively, but steadily.

(19) The wool inclines to merino, English, or Lincoln and the Downs, and their cross.

(20) A change of industry from pastoral to agricultural will not take place for many years, and then only partial and gradual.

(21) The average size of general flocks is from 1,200 to 1,500; for fattening, from 200 to 500.

(22) Owners, as a rule, live on their ranches, or *estancias*.

(23) There are many small *rancheros*, or sheep farmers; but are mostly renters, not proprietors.

(24) Prices are weak just now in Europe; here, no stock.

There are very few native, or Creole, sheep; these are of very slight build, with light, long, hairy-like wool, mostly used for mattresses.

The English breeds here are chiefly of the Lincoln, Downs, and Romney Marsh types; the merinos are Negrettis (bred in Germany from Spanish stock), Rambonillets (bred in France), and Vermont merinos (bred in the United States). These were first introduced in the Argentine Republic by E. C. Eells in 1885, and in Uruguay the following year by B. Lorenzo Hill; have made a good record, and would materially improve weight and character of wool here and the constitution of sheep. For the production of meat or carcass the English and Rambonillet types are the most desirable; for wool and hardiness, the American merino. The merinos do best on the fine, soft grass camps; also, the Lincolns. The Downs do well in the hilly, hard-grass districts. In small numbers and in small inclosures, both for breeding and fattening, they give far the best result. With this change and protection from the storms, the enormous periodical losses would be very much lessened.

The excessive rain for months together, and consequent overgrowth of rank, coarse, unripened grass in 1889 and development of every imaginable intestinal parasite in windpipe, lungs, and stomach, together with foot-rot, fluke, scab, and want of shelter, killed upwards of 30 per cent. of the youngest sheep and all the lambs of that year. The shrinkage of wool production, compared with 1888, was from 40 to 50 per cent., and, as there were no lambs in 1889, this year's shrinkage will be still greater. All sheep diseases are more prevalent and destructive in wet seasons, and all the family of the parasite kingdom seem to germinate and thrive in wet, low, swampy ground. Of remedies, there are many in the market. For fluke (from parasite *Distoma hepaticum* in liver), worms, and foot-rot removal to dry, high camp, with liberal rations of common salt for two first, and for worms sometimes throat injections of turpentine, with linseed oil as well. For foot-rot carbolic preparations are used with success. One of the best, most harmless, and effective remedies for scab is the "Quibell Dip," and, when properly applied, will control this disease; is also valuable for foot-rot and worms. Tobacco extract, or nicotine, is an effective remedy, but must be genuine.

WHEAT.

(1) The estimated area of wheat and maize in 1889, say half wheat and half maize, was 403,000 hectares, or 1,007,500 acres. A large portion of the wheat crop was a failure from excessive rain.

(2) The average yield is, say, 13 bushels to the acre in favorable seasons; in 1889, from 500,000 acres, the estimated crop was only 70,000 bushels.

(3) Absence of statistical data renders impossible an exact estimate of the acreage suitable for wheat growing. As far as able to judge, should say that about one-third of the whole area of the country may be suitable for cultivation, or 18,000,000 acres.

(4) It lies principally in the southern, southeastern, and southwestern districts, the northern portion being more hilly and rugged; this, also, with wide and fertile valleys intervening.

(5) The arable land, being free from wood and stone, needs no previous preparation for its cultivation, neither manure for the production of wheat or maize.

(6) These lands are mostly quite near navigable streams or lines of railroad completed, in construction, or projected.

(7) However favorable or promising the future agricultural prospective may be, the fact of there being no Government lands or any extensive portions of arable land available, except by Government expropriation at very high rates, together with the natural averseness of the

average native to this branch of industry, must necessarily make more difficult its very rapid progress or development.

(8) The extraordinary fluctuation of statistical figures and grain production from year to year is mostly due to the inconstancy or uncertainty of the seasons, which here seem always to be a threatening contingency; some seasons come too wet, others come too dry, at certain critical periods during growth or harvesting of wheat, frequently destroying a great portion of the whole crop. The want of suitable sheds or accommodation for storing and insufficient machinery to harvest the wheat quickly in a wet summer also occasions very considerable loss. These, together with the enormous destruction some years by insects and worms, the most frequent and most dreaded being the "lagarta," a kind of caterpiller, against which no effectual protection has yet been discovered, give the sum of the principal contingencies upon which crops and wheat growers' success depend. The object of the official valuation is to regulate a proportional specific import duty on wheat, increasing same when wheat is abundant and reducing when scarce or dear.

(9) The almost incessant rain for months together was the cause of the great shrinkage of wheat in 1889.

(10) It is exported to Brazil and different European ports.

(11) Locusts are not frequent, though occasionally they come in great numbers and do great harm, but more to grass and other vegetation than to wheat.

(12) Excessive rain, when out of season, damages crops most seriously.

(13) There is certainly a more than usual interest being shown of late, and a decided movement in the direction of a change from cattle to grain, fostered by the Government and stimulated by the press. This, however, is not especially attributable to disease in cattle or frequent droughts, but more to constant increase of population and consequent demand for, and extraordinary advance in, price of land, and necessity for a proportionate increased production or income therefrom, to obtain which not only obliges improvement and more modern methods in breeding of cattle and sheep, in which great progress has already been made of late years, but also more extensive and less primitive methods of cultivation. The ultimate expediency, practicability, or advantage to the country of an unlimited or complete change from cattle to grain remains for time and future experience to determine. While there are considerable portions of land in different sections of the country conveniently situated and admirably adapted to agricultural purposes, there are others as important and extensive, mostly covered with hills, rocks, and stone, utterly unfit, except in the valleys, for cultivation, yet unsurpassed for grazing, offering ample fields and fine opportunities for capital and intelligent labor and room for great improvement in production and in results, both in cattle and grain. For the present cattle and sheep hold the supremacy, are the backbone of the country, and evidently will be for years to come.

(14) The yield of wheat to the acre is about 13 bushels in good seasons. The average yield for a succession of years is difficult, if not impossible, to give.

(15) The ground is manured very rarely, unless for gardening purposes or for alfalfa; not required for production of grain.

(16) No positive data exist as to the percentage of land plowed, in pasture, and in forest. Plowed land was estimated at 18 per cent. in 1889, leaving 82 per cent. for pasture. There is no extensive forest, and is only found in certain sections and in narrow belts near principal streams.

(17) Agriculturists own from 60 to 1,000 acres, as a rule; sheep and cattle farmers, from 1,000 to 250,000 acres of land.

B. LORENZO HILL.

FRANK D. HILL,
United States Consul, Montevideo.

No. 123——5.

COTTON, WOOL, AND WHEAT IN ARGENTINE REPUBLIC.

REPORT BY CONSUL BAKER, OF BUENOS AYRES.

I am in receipt of dispatches instructing me to make a special report in reference to the wool, wheat, and cotton industries of the Argentine Republic, their past and present condition, "and as much information concerning their probable future development as can be obtained."

COTTON INDUSTRY.

In response to these instructions I have to inform you that, so far as the last-named industry is concerned, there is thus far in the Argentine Republic nothing which can be called development. The cotton-plant (*Gossypium malvastes*), which has been known from all antiquity in the Old World, seems to be equally indigenous in the New. Equally with the people of Egypt and oriental India the primitive inhabitants of various portions of South America spun vegetable wool and dressed in garments woven from cotton at the time of the Spanish conquest. At that time the plant grew wild in many of the interior provinces; it still grows wild in Paraguay, in Corrientes, Catamarca, Salta, and the Gran Chaco. But those who conquered the country have taken no advantage of their opportunities, and have left the industry where they found it. Nay, there is less cotton raised to-day in the Argentine Republic than there was three hundred years ago.

Primitive cotton planters.—During the Spanish vice-royalty, cotton was cultivated for its fiber, not only in the places I have named, but also in the Missiones, where the Guarani Indians especially devoted themselves to this industry. They not only cultivated the plant, but, with the aid of very simple looms, they wove the cotton-wool into fabrics—of a very coarse texture, it is true, but of exceeding strength and duration. Of course, the quantity was limited, but it was quite enough to satisfy the local demands. And this industry was prosecuted and continued to increase with the settlement of the country, until the foreign commerce of Buenos Ayres began to import at a very low price the common tissues and linsey-woolsey made in England and the United States. With this competition, the local manufacture quite disappeared; and, generally, the inhabitants discontinued the cultivation of the plant. At the present time, in the upper provinces, only enough cotton is produced to supply the very small domestic demand of a few native hand-looms.

Adaptability of climate and soil.—As to the adaptability, however, of certain portions of the Argentine Republic for the extensive cultivation of cotton—a point in regard to which information is desired by the Department—I have no hesitation in saying that the conditions of both soil and climate could not be more favorable. M. de Mousey, the well-known French savant, in his work on the Argentine Republic, makes a special reference to this subject. He says:

> The province of Catamarca still produces some cotton, mostly used for candle-wicking, and in some portions of Rioja, Santiago del Estero, and the valleys of the San Francisco River the inhabitants continue to cultivate a few small patches, but enough to show what might be done. They obtain the most beautiful crops, and the quality would warrant the production of a greater quantity. The samples sent to England have been greatly appreciated, and stood in the same category with the best which comes from the United States. For the rest, it is sufficient to examine the vigor and robustness of the plants—which, under a most favorable climate, attain to a height of 3 or 4 meters, covered with long, silky cocoons of brilliant whiteness—to estimate the product which a proper cultivation would give. In regard to the present cultivation, the cotton which I have seen growing in Catamarca, although having a root which is perennial, may be considered as herbaceous, since they cut it down even with the ground every year. In the other localities they let the plant grow, and it acquires the size of a small tree, taking care, however, to prune sufficiently close all the small branches after fructification. The seeds of the cotton-plant in this country are black, thus corresponding to the highly esteemed cotton of Georgia. But the Argentine varieties are evidently indigenous, since the Spaniards found the Indians whom they conquered devoting themselves to its cultivation, thus furnishing themselves with the clothing necessary to cover them. It would be difficult to state the average crop from a hectare of cotton-plants, since the manner and details of their cultivation, whether herbaceous or perennial, the seasons, the quality of the soil, etc., all influence the production. I am told that generally the plantations on the upper Paranà and in Rioja give a product which varies from 1½ to 2 kilograms of pods—which includes the weight of the seeds—for each foot of shrub. Equally good results are obtained in the other provinces.

Recent efforts to cultivate it.—During our civil war, when, owing to the very rigid blockade of our Southern ports, it was not possible for the mills of Manchester to obtain a sufficient supply for their immense consumption, there was a concerted movement on the part of the British Government to stimulate the production of cotton in the Argentine Republic. Mr. Hutchinson, at that time the British consul at Rosario, received special instructions on the subject, and traveled through several of the interior provinces and inspected the country lying along the Paranà River, with a view to learning their adaptability for cotton plantations. General Mitre, at that time President of the Republic, wrote official letters to the governors of the provinces, and they, in turn, issued proclamations offering free land to all who would engage in the new industry. Tons of the best varieties of the cotton-seed were sent out by the Cotton Supply Association, of Manchester, and these, in turn, were distributed among the Argentine people gratis.

Episode of our civil war.—As an episode of our late civil war, with which, perhaps, very few in the United States are at all familiar, and as at the same time affording no little information on the question of the adaptability of the soil and climate of the Republic for the cultivation of cotton, a quotation from Mr. Hutchinson's record of his observations may not be without interest in the present connection. He says:

> Throughout all my journey of nearly 3,000 miles in the Salado valley, across the rich soil of the Chaco and over the fertile provinces of Santa Fé, Santiago del Esterio, Tucuman, and Cordova, the following passage from Mr. Henry Ashworth's pamphlet on cotton frequently

> recurred to my mind: "It is known that the cotton lands of the United States are limited in their extent, ranging principally across that country from 33° to 34¼° north latitude, and that the cultivation of them is leading ultimately to their exhaustion."
>
> In this view I trust my observations will prove of mutual advantage to the cotton interests of England and to the prosperity of the Argentine Republic. During my passage through the inhabited portions of these provinces—for there are immense districts throughout their limits which are yet as uncultivated as the Chico wilderness—I explained to the land-owners, who questioned me on the subject, that my instructions from Her Majesty's Government were merely to "seek for wild cotton." At the same time I consented to transmit to the Cotton Supply Association, of Manchester, through the foreign office, any statement of their desires and opinions on the subject, merely suggesting that they should be founded on the following assurances: (1) That the governors would lend their aid and authority to promote the cultivation of cotton; (2) that the *estancieros* and holders of land were willing to devote some of their time and capital to the object; and (3) that they thought well of attempting the work with the present population.
>
> Although they invariably expressed a desire to commence a branch of agriculture which they looked upon as a security for peace as well as a source of wealth, the governors especially signified a dread of not being able to do much in the matter without immigration; "for," they said, "the existing population does not understand the *modus operandi* of cotton cultivation, and, moreover, being brought up in the exciting work of Gauchos amongst horses, bullocks, and *saladeros*, it is to be feared there would be some difficulty in bringing them around to the tame labor of agricultural industry."
>
> My general reply to these observations was a suggestion to them to make a beginning, even with the labor which they had, and thus let the English capitalists see that there was industry here, which, if so inclined, they might promote with a prospect of success.
>
> General Don Antonino Toboada, with whom I had many an interesting conversation on the subject, told me he was very anxious to have cotton cultivated in his province; that he had 7 leagues of land near Fort Bracho, on the right bank of the Rio Salado, which he would make over gratuitously to immigrants, and that he would give them all the aid and protection in his power. Connected with this, I hinted an idea to him bearing on his Agricola (military forts, that extend from Navicha to a distance on either side of the river of a couple of hundred miles, and that contain a few thousand soldiers). This was to give each of these soldiers, say, 10 grains of cotton-seed at the proper time of sowing. They can be planted without any additional labor or ground, their pods collected by the children, and thus, calculating an average of 2 pounds in weight to each plant for the first year, he would have a beginning of nearly 40,000 pounds' weight of cotton flock, even with a small allowance for waste. The produce, even at the normal price of 6*d.* per pound, would realize from £2,000 to £3,000, besides providing seed enough for the whole province of Santiago. He said he would try it, if I sent him the seed, which I engaged to do.
>
> In this province there are at least 20,000 working-men out of a population of 100,000 inhabitants—men who work for 1 real (4½*d.*) per day, and whose feeding on beef and maize does not cost more than another real per head per day.

Going up through the Salado valley to Tucuman, Mr. Hutchinson says he found all through this last-named district "a rich soil like that of a well-manured garden," though he "saw very little or no cotton, except a few thousand plants on the *estancia* of Don José Frias, near the capital." He goes on to say:

> Cotton, in Tucuman, is sold for 3 reals (about 1*s.* 2*d.*) per pound with the seed. When the seed is picked out—the only means they have of cleaning it—the staple is sold at the enormous price of 12 reals (nearly 5*s.* per pound). Supposing the cotton were cultivated in a

sufficiently large quantity for exportation from Tucuman, the freightage from there to Rosario would be about £2 12*s.* for every bale.

In Cordova the cotton formerly cultivated in the adjoining province of Catamarca was sold up to 1840 at from 7 to 8 reals (2*s.* 10*d.* to 3*s.*). In former times the price of cotton at that place ranged from 20 to 40 reals (7*s.* 6*d.* to 15*s.*) per 25 pounds, but the small quantity of it now produced—for its culture has been much suppressed by the introduction of English goods—is sold at double that price.

In Santa Fé there appears, as yet, little effort made for cotton cultivation. The staple cultivated in this province in former times was considered of such superior quality that the Paraguayans were in the habit of sending down the river for cotton grown in Coronda, in order to make the finest kinds of Paraguayan lace therewith.

Besides in the provinces named, much seed has also been distributed through those of Buenos Ayres, Entre Rios, and Corrientes, which is likely to be productive of good results at the end of the year. On his *estancia* between Batel and Corrientes rivers Señor Ximinez has many squares of cotton doing very well and hopes to have the produce of several thousand plants to send to England before long.

Question of getting it to market.—The question, however, of bringing cotton from the interior provinces to places of shipment near the river being an obstacle to its successful cultivation for export, Mr. Hutchinson expressed the opinion that more was to be expected from the plantations lying along the Paraná River for more than 1,000 miles of its course, and especially from the islands of that river. Writing to Earl Russel on this subject he said:

(1) Between the mouth of the river Plate and the city of Corrientes, near to which the rivers Paraná and Paraguay form a confluence, there is a net-work of islands, calculated, at a rough estimate, to possess an aggregate of from 200 to 300 square leagues, or from 2,000 to 3,000 square miles. This is independent of the islands of the river Uruguay, which is likewise one of the affluents of the river Plate. In fact, the total islands of these rivers may be said to have from 3,000 to 4,000 square miles of *terra firma*.

(2) These islands possess the advantage of being entirely removed from the seat of war in any future disturbance here, and, moreover, can not be trespassed on by any herds of sheep or cattle that roam over the Pampas.

(3) Ships can load from them without any expense of intermediate land transport, so as to be able at once to proceed to sea.

(4) As the water of the river Plate is fresh to its embouchure, below Montevideo, no harm can ever result from drought, because machinery for watering the plants can be easily erected.

The same labor which tends sheep in the province of Buenos Ayres, cultivates corn in Cordova, sugar-canes and tobacco in Tucuman, and varieties of agriculture in Santa Fé—namely, that of Europeans—can be used all through the Argentine provinces for cotton cultivation.

If the governors, *estancieros*, and land-holders be helped by European capital and immigration, there would appear to be strong hope that this part of the world could supply much of the possible "exhaustion" in the United States. We have here an extent of land—the greater part of it virgin soil—more than eight times as large as the cotton States of the north; we have a river not inferior to the Mississippi in its navigability and length of course, and far superior in its healthfulness; we have cheap labor to commence with; and, finally, we have all these advantages within many weeks' nearer sail of England than either India, Queensland, or Australia.

Thus it looked in 1863, as though the thousands of square miles of virgin soil along the shores of the Argentine rivers, quite in the same latitude south as the cotton lands of the United States are north, were about to compete with the latter for the cotton supply of the world. But the movement never amounted to any thing. In the first place, the natives were too indolent and too unaccustomed to work to undertake the labor which cotton growing requires; and, with all the assistance which England offered, their efforts were spasmodic and without visible results. In the second place, the sudden close of our war in 1864 removed the interest which England had taken in the matter, and cotton-growing in the Argentine Republic for exportation will require some more stimulating impulse than now exists before it becomes an industry of the country.

Prospect of its future cultivation.—Certainly nothing is lacking, whether in the matter of climate or the capacity of the soil—especially that of the islands and lowlands bordering on the great water-courses of the country—to make the Argentine Republic a great fiber-producing region. I speak especially of the Argentine Mesopotamia, for the reason that, however suitable the upper interior provinces may be for cotton plantations, in the present condition of things, with the immense distances which separate the centers of population and the high price of freights to the places of ultimate shipment, it is not probable that cotton can ever be raised with a view to exportation. But from the riverine provinces there can be no difficulty whatever. The magnificent natural channels which border those provinces bring their products directly to the principal ports of the Republic, from which they can be embarked at once for Europe. And in the fullness of time, with the advent of available labor from European immigration, there is no doubt that cotton planting, which seems to be naturally indigenous, will become an established industry of all these undeveloped regions, working as complete a social and commercial revolution here in the river Plate as the establishment of cotton plantations has produced in the valley of the Nile. In the meanwhile, however, instead of being a producer and exporter of cotton, the Argentine Republic—as has been the case since the conquest of the country by the Spaniards—must continue to import its cotton goods from abroad.

WHEAT INDUSTRY.

The next subject in regard to which I am instructed to furnish information is the wheat industry of the Argentine Republic. I have already done this in so many different reports that it will be difficult for me not to repeat myself. The cultivation of the soil for cereal crops is, in the regions of the La Plata River, an occupation of only very recent date. When I was placed here sixteen years ago, a large proportion of the breadstuffs consumed in this part of the country was imported from the United States or Chili, and cargoes of flour from Baltimore, Richmond, and New York were of constant occurrence. Indeed, it was the general opinion of the people, based on the scientific utterances of Dr. Burmeister, the great German naturalist, who has for years occupied the same place here that Dr. Agassiz did in the United States, that the Argentine Pampas were, from their composition, radically unsuited to the production of crops, and must always be used for pasturage. Against this adverse criticism, however, President Sarmiento publicly protested by surveying and laying out into small farms a large tract of wild Pampa land in the very heart of the province of Buenos Ayres. These were disposed of to actual settlers who would devote their attention to agriculture. About this time, in a report which was published all over this country, I also made the statement that the Argentine Pampas possessed the soil and general characteristics of our own great western plains, which for so many years spread out beyond the Missouri River as a great barren waste, but which, when touched by the magic wand of enlightened industry, at once bloomed into the great grain-producing states of Kansas and Nebraska. Sarmiento's experiment was a success. It was at once discovered that, so far from being unsuitable for cropping, the soil of the Argentine Pampas is admirably adapted to the purpose. The whole country around about Chivilcoy is now like an oasis in the desert; and not only that, but very many other portions of this province, where formerly only cattle and sheep ranged at will, have expanded into highly cultivated farms, thus forever putting to rest the idea that the Pampas are only suitable for the pastoral industry.

Recent agricultural departure.—At once a new departure was made in the agricultural development of the country, and now it is only a question of time and immigration for the Argentine Republic to become one of the great grain-producing regions of the world. The great drawback to agriculture has been that the available land was in great part held in immense tracts by wealthy *estancieros*, who persistently devoted it to pastoral purposes. Of late years, however, there has been a very visible disposition to divide up these large estates into convenient farming lots, and the "agricultural colonies" of the province of Santa Fé and the "agricultural centers" of the province of Buenos Ayres are now making such progress that the grain crops of the Argentine Republic will soon vie in value and importance with the pastoral industry of the country.

Wheat product.—It is not possible for me to give the annual product in bushels, for the reason that the Government has not yet established any system of crop reports and the estimates of each year are entirely based on guess-work. Mr. Flies last January estimated the crop yield of 1889–'90 as follows:

Crop.	For consumption.	For export.	Total.
	Tons.	*Tons.*	*Tons.*
Wheat	540,000	595,000	1,135,000
Maize	500,000	1,350,000	1,850,000

How far he came from the mark is not yet fully known, but it is now generally understood that the surplus for export of last season's crop is much below his estimates.

Exports.—I give below the custom-house returns of the exports for the years 1888 and 1889:

Articles.	1888.		1889.	
	Quantity.	Value.	Quantity.	Value.
	Tons.		*Tons.*	
Wheat	178,928	$8,248,614	22,806	$1,596,446
Corn	162,037	5,444,464	432,590	12,977,721
Flour	6,392	639,254	3,360	510,851
Total		14,332,332		15,085,024

I have just obtained the exports of grain for the first three months of 1890, and give them as follows:

Articles.	Quantity.	Value.
	Tons.	
Wheat	269,141	$19,137,679
Maize	370,509	9,897,250
Flour	7,608	1,093,295
Total		30,128,224

As the total surplus of the crop of 1889-'90 had not yet gone forward when the above official returns were compiled, it is very evident that the cereal crop of those years is much the largest that was ever produced in the country.

To what countries exported.—The countries to which the wheat crop of 1889 was exported, as appears by the official returns, were as follows:

Country.	Quantity.	Value.
	Kilograms.	
Germany	637,684	$44,638
Belgium	2,708,696	189,607
Brazil	4,209,762	294,685
Spain	415,551	29,089
France	685,190	47,963
Italy	508,165	35,572
Paraguay	4,685,269	327,969
Great Britain	3,500,131	245,209
Uruguay	4,877,790	341,445
Not designated	578,135	40,469
Total	22,806,373	1,596,446

The following table shows the countries to which the corn crop of 1889 was exported:

Country.	Quantity.	Value.
	Kilograms.	
South Africa	810,978	$24,329
Germany	19,778,398	593,352
Belgium	21,268,294	638,049
Brazil	99,967,554	2,999,028
Chili	583,800	17,514
Spain	13,962,944	418,888
France	71,583,649	2,147,509
Italy	27,860,012	835,800
Holland	2,294,815	68,844
Portugal	1,841,568	55,247
Great Britain	161,111,566	4,863,347
Uruguay	537,489	16,125
Not designated	6,696,255	200,888
Total	432,590,679	12,977,721

The following table shows the countries to which the surplus flour of 1889 was exported:

Country.	Quantity.	Value.
	Kilograms.	
South Africa	540	$82
Germany	400	61
Belgium	99,324	15,097
Bolivia	7,630	1,160
Brazil	678,202	103,088
Spain	21,140	3,213
France	272,907	41,482
Italy	32,529	4,949
Paraguay	619,904	94,225
Great Britain	28,395	4,316
Uruguay	1,569,505	238,565
Not designated	17,130	2,603
Total	3,360,876	510,853

I am not able to state at present the countries to which the surplus of either wheat, corn, or flour for the present year has been exported, for the reason that such returns have not yet been published by the Government.

Land in wheat cultivation.—In regard to the amount of land in cultivation in the Argentine Republic, it is impossible to give more than a mere estimate, as no census has been taken in the country since 1875. At that time the total quantity was 825,492 acres, of which 271,436 were in wheat, 249,356 in Indian corn, 209,572 in alfalfa, and the balance in other crops. Since then there has been a steady increase of the acreage in crops, and the returns for 1889, as reported in the President's last message, show that there were 5,899,895 acres under cultivation, of which 2,171,590 were in the province of Buenos Ayres and 1,466,342 in the province of Santa Fé.

The following table shows the progression of the acreage in wheat and corn since 1875:

Crop.	1875.	1884.	1888.	1889.
	Acres.	*Acres.*	*Acres.*	*Acres.*
Wheat	271,436	686,000	824,099	1,035,000
Indian corn	249,356	330,000	832,609	850,000
Total	520,832	1,016,000	1,656,708	1,885,000

The above returns of acreage for 1889 are estimated by Mr. Flies, one of the most reliable statisticians in the country. When we consider, however, the impulse which agriculture has received since 1884 from the 300,000 immigrants who have found homes in the country during the last six years, I should consider that the figures are considerably below the mark.

Land suitable for wheat growing.—You desire me to state the amount of land in the Argentine Republic which is suitable for wheat-growing. I am not, of course, in a condition to give exact figures, since the problem has not yet been solved as to how much and what parts of the total area of the country may not be susceptible of crop cultivation. The following table shows the superficial area of the different provinces and territories and the amount of land which is estimated to be at present in cultivation:

Provinces and territories.	Area in cultivation.	Total area.
	Hectares.	*Hectares.*
Provinces:		
Buenos Ayres	868,658	31,123,700
Santa Fé	586,537	13,158,200
Entre Rios	136,151	7,545,700
Corrientes	46,631	8,114,800
Cordova	234,395	17,476,700
San Louis	79,630	7,591,700
Mendoza	88,546	16,081,300
San Juan	79,630	9,750,500
Rioja	22,217	8,903,000
Catamarca	44,618	9,064,400
Santiago	120,400	10,235,500
Tucuman	35,943	2,419,900
Salta	38,525	12,826,600
Jujing	18,994	4,528,600
Territories:		
Missiones	4,606	5,395,400
Formosa	640	11,567,100
Chaco	3,623	12,483,400
Pampa	5,964	14,491,900
Neuquen	....	10,908,100
Rio Negro	1,291	21,216,300
Santa Cruz	....	27,691,000
Chubut	....	24,733,100
Tierra del Fuego	....	2,104,800
Total	2,359,958	289,429,841

WOOL INDUSTRY.

For many years to come, however, the leading industry of the Argentine Republic must continue to be the raising of sheep and the production of wool. The history of sheep farming dates back to 1550, when the merinos were introduced from Spain; but it received no attention whatever from the early settlers of the country. Even as late as 1840 sheep were of no value in a commercial point of view. They were allowed the run of the Pampas as a cheap, but not a desirable, article of food. The wool was not worth the expense of carting it to town, and it was often used for litter.

The first great impulse was given to the industry about thirty-five years ago, when a few Scotch and Irish sheep farmers, seeing the wonderful possibilities which the Argentine Republic possessed for growing sheep, began to improve the stock by the importation of the finer Negretti and Ram breed.

In 1852 the number of sheep in the entire Republic was 5,500,000; but with the refinement of the wool a foreign market sprang up, and in 1860 the number had increased to 14,000,000. Then followed our civil war, which caused an unprecedented demand for foreign wools and sent the price up to fabulous figures. Everybody that could raise money enough to buy a flock of sheep went into the business, and in 1867 the number of sheep was estimated to be 40,072,312. In 1877 it had reached 48,498,688 and in 1888 it was 66,701,097, according to the official estimates. The great seat of the wool industry is the province of Buenos Ayres, the rich succulent grasses of whose boundless Pampas afford natural pasturage to the foot of the Andes; but the other provinces have all a few sheep. The following table shows the number of sheep in each province and territory:

Provinces and territories.	Native.	Mixed.	Pure blood.	Total.
Provinces:				
Buenos Ayres	12,980,544	38,224,204	353,002	51,557,750
Santa Fé	1,004,255	1,973,127		2,977,382
Entre Rios	4,458,614	442,509		4,901,123
Corrientes	373,845	237,197	43	611,085
Cordova	2,355,030			2,355,030
San Luis	241,827			241,827
Mendoza	113,468	8,368	462	122,298
San Juan	57,902	3,103	1,667	62,670
La Rioja	57,386	500	40	57,932
Catamarca	152,438			152,438
Santiago	781,951			781,951
Tucuman	43,390			43,390
Salta	243,089	13,606		256,895
Jujuy	617,803			617,803
Territories:				
Missiones	4,086	132		4,218
Formosa	143			143
Chaco	3,751			3,751
Pampa	600,292	1,044,305	25,796	1,670,393
Rio Negro	232,120	55,820		287,940
Tierra del Fuego	280		2	282
Total	24,322,214	42,002,871	381,012	66,701,097

There are no inconsiderable numbers of sheep, also, in the territories of Chuput, Santa Cruz, and Neuquen, but they were not included in the last census of 1887.

There are also 47,738 llamas in the province of Jujuy employed as beasts of burden, while the number of guanacos, vacuñas, and alpacas, as they roam wild over the far Pampas and mountain slopes, can not even be estimated.

It appears from the foregoing returns that in the province of Buenos Ayres there are 171 sheep per square kilometer and in the entire Republic 22 per square kilometer. The average weight of ewes is 20 to 25 kilograms and of rams and wethers 30 to 35 kilograms.

The number of sheep in the Argentine Republic is equal to 17,787 per 1,000 inhabitants.

Value of sheep.—The value of the sheep in the Argentine Republic is thus stated by Sr. Carrasco, director of the census:

Native sheep	$36,067,750
Mixed breeds	104,846,082
Pure blood	6,319,870
Total	147,233,702

Condition of the industry.—It would seem from the foregoing figures that the sheep industry of this country is not quite so flourishing as it was a few years ago. Relatively, since the agricultural resources began their development, it is not so important as it has been; but it is not possible to say if there has been any retrograde, as the returns of sheep are only based on estimates and calculations, and every person who undertakes to publish statistics makes use of such figures as he may have at hand. Thus Mr. Mulhall, in his "Hand-book of the River Plate," estimated the number of sheep in 1884 at 70,896,000; while the President, in his last message in 1888, four years later, put the number at 70,453,665; and now Sr. Carrasco places the number at 66,701,097, nearly 4,000,000 less. While the industry may not actually be on the decline, there are several reasons which would indicate that there is a temporary decrease in the actual number. In the first place, the losses from floods, foot-rot and starvation for the last two or three years are estimated by many millions; and, in the second place, there is now a steady market in Europe for mutton carcasses. But even so, the Argentine Republic has a larger number of sheep than any other country in the world, Australia following with 58,052,180 and the United States with 48,322,331. Sr. Carrasco puts the value of the flocks at $144,233,702, while Mr. Mulhall estimates it at only $136,000,000, about $10,000 less; and he distributes the industry among the different nationalities as follows: Argentines, $73,000,000; Irish, $30,000,000; Scotch, $7,000,000; Basques, $20,000,000; total $136,000,000.

Wool clip compared with other countries.—The wool clip of the country bears a very small proportion to the number of sheep. This is seen from the estimate of the world's clip for 1886:

Country.	Number of sheep.	Total wool clip.	Clip per sheep.
		Pounds.	*Pounds.*
Argentine Republic	69,000,000	261,000,000	3.8
Australia	66,000,000	390,000,000	5.8
United States	48,000,000	210,000,000	4.2
Cape Colony	11,000,000	52,000,000	4.7
European countries	194,665,000	665,000,000	3.4
Other countries	19,000,000	76,000,000	4

From this it will be seen that the yield is 3.8 pounds of "dirty," or unwashed, wool; and, by being always thus shipped in the grease, river Plate wool suffers more from shrinkage than either Australia or Cape Town, as the net results are as follows:

Country.	Shrinkage.	Net yield.
	Per cent.	*Pounds.*
Argentine Republic	65	91,000,000
Australia	48	220,000,000
Cape Colony	30	36,000,000

I have heretofore called the attention of the Department to this fact, and stated that, as a wool-producing country, "these figures, according to our census of 1880, place the Argentine Republic really below the United States in clean yield."

Value of annual yield.—In regard to the value of the wool clip, including fleeces and sheep-skins, I have no way of reaching it except by taking the tables of exports. The following are the figures of the last ten years:

Year.	Wool.		Sheep-skins.	
	Quantity.	Value.	Quantity.	Value.
	Tons.		*Tons.*	
1881	103,876	$31,446,495	32,339	$4,639,437
1882	111,009	29,978,960	22,353	4,231,718
1883	118,403	29,600,918	26,564	5,035,886
1884	114,344	32,005,819	24,938	5,484,952
1885	128,393	35,950,111	31,336	6,267,377
1886	132,130	31,711,604	35,312	6,350,731
1887	109,164	52,749,315	30,447	6,698,408
1888	131,743	44,858,606	28,054	5,610,923
1889	141,769	56,709,774	36,376	11,386,593
1890 (9 months)	102,550	70,447,903	18,522	9,426,559

It is necessary to state that the values for the last four years are stated in paper currency, which now is only worth about 40 cents to the dollar.

To what countries exported.—The countries to which the wool clip of 1889 was exported will appear from the following table:

Country.	Wool (unwashed).		Sheep-skins.	
	Quantity.	Value.	Quantity.	Value.
	Tons.		*Tons.*	
Germany	34,295	$13,718,318	1,240	$388,176
Belgium	30,578	12,231,472	1,114	348,718
Brazil	11	4,424	....	....
Spain	11	4,713	53	16,604
United States	5,106	2,042,506	....	....
France	61,244	24,497,670	27,715	8,674,931
Italy	1,615	646,269	3,010	942,305
Holland	14	5,952	....	....
Portugal	21	8,462	....	....
Great Britain	4,796	1,918,426	2,014	630,477
Uruguay	1,672	668,884	943	295,268
Not named	2,406	962,678	287	90,114
Total	141,769	56,709,774	36,376	11,386,593

The wool included in the foregoing returns was all fine clothing varieties, except that which was shipped to the United States. The latter was carpet wool, raised from "criolla" sheep in the upper provinces and shipped from the port of Rosario to Boston.

The future of Argentine wool.—There is no doubt that sheep growing, along with the cattle business, must continue to be one of the leading industries of the Argentine Republic. Its development can be indefinitely extended. There are millions of acres all through the vast interior and running along the Andes away down to the extreme limits of Patagonia, which, whatever else may be said of the country, can be used for sheep and cattle pasturage; and, as the inside lands become too valuable for sheep and cattle ranges, but must be employed for farming purposes, these outside "camps" will come into requisition for pasturage. Already, with the progress of agriculture, the sheep and cattle are moving farther and farther out, and, with the development of the country, we may ultimately expect to see all the vast extent of Pampa, now beyond the reach of railways or markets, filled with sheep and cattle *estancias*. Whatever may be the fate of wool and wool growing in other countries, here it is safe for all time to come.

CLIMATE, SOIL, AND CONDITIONS.

The total amount of land under cultivation in corn, wheat, alfalfa, oats, barley, sugar-cane, and other crops amounts at present to only 2,359,958 hectares, or 5,899,859 acres, and stands for only about 1 per cent. of the total area of the Republic. The disproportion of these figures shows that agriculture here is yet in its infancy, and reveals the immense work which remains for European immigration to accomplish. But, while Dr. Burmeister's theory of a few years ago, that the Pampas are unfit for agriculture and must always be used for grazing purposes, is now entirely exploded, it does not necessarily follow that all parts of these vast plains offer equally good farming lands. On the contrary, we know that there are large areas so alkaline or so saturated with saline deposits that they will not produce satisfactory pasturage, and much less are they susceptible of cultivation.

With these exceptions, it is sufficient to say that the absence of forests does not arise from the quality of the soil. Like our own western plains or the steppes of southern Russia, although the Argentine Pampas are entirely treeless in their natural state, yet they have generally a rich, fertile soil, not dissimilar, as the analysis shows, to that of the delta of the Nile or the valley of the Rhine; and the annually increasing breadth in the Pampa provinces put down in cereals shows conclusively their fitness for agricultural purposes. But the Pampas are far from extending over the whole country. Indeed, the greater part of the Argentine Republic, in formation, has nothing in common with the Pampa, which is properly situated along the Plate and Paraná rivers. For the rest, it is sufficient to say that the Argentine Republic extends from 56° to 20° south latitude, and, with a generally good soil, is subject to a great variety of climatic conditions, furnishing, in turn, an equally great variety of productions. While I would not say that all the vast Argentine territory offers an equally rich field to the diligent and experienced cultivator, much less that, owing to climate or soil, it is all suitable for wheat growing, yet the places, especially in the southern portions, which are not available for agriculture are rare, indeed, in comparison with the immense expanse which only requires the active arm of intelligent labor to be transformed into the richest fields of wheat. It is, however, the southern provinces of Santa Fé, Entre Rios, and Buenos Ayres, extending down to the regions of the Rio Negro, and the Neuquen territory of the Andine water-courses which are to become, in the fullness of time, an inexhaustible granary of wheat and corn. The above provinces and territories alone comprise over 97,443,900 hectares, or 243,609,750 acres, of land, and their nearness to navigable streams or to the net-work of railways, which is year by year further and further extending its arms through and across this portion of the Argentine Republic, will always bring their surplus harvests within a marketable distance of the centers of European population. The province of Entre Rios has its outlets to the ocean by both the Paraná and the Uruguay rivers; the province of Santa Fé, besides being ramified by railways, has an ocean outlet by the Paraná River, sea-going vessels being able to reach Rosario at all seasons of the year; the province of Buenos Ayres, with its system of railways reaching to its extremest southern and western portions, has now two of the finest ports or systems of docks in the western world—at Buenos Ayres and the city of La Plata—and capable of receiving the largest ocean-going steamers, while Bahia Blanca, with a natural port of the largest capacity, will furnish an outlet for the grain of all the Rio Negro and Andine regions.

With these natural and artificial facilities for extensive wheat and corn production are coupled climatic conditions, which are quite as favorable as those which are found in the great grain-producing states of Kansas and Nebraska. The rain-fall in all the great breadth of country I have referred to above, and especially along the rivers, is uniformly seasonable and frequent. It is seldom that there is any long-continued drought, even during exceptionally dry seasons, while the humidity of the atmosphere is such in all the riverine provinces as to almost answer the purposes of ordinary showers.

In the far interior provinces, however, the rain-fall is not only uncertain and infrequent, but it is precipitated in such limited quantities—in some of them amounting to nothing—that artificial means of obtaining water are required for the production of crops. And, as the water-courses of the interior are generally small and quite exhausted during a portion of the year, it is hardly probable that for many years to come there can be such a system of irrigation as will open up to cereal crops any very extensive districts. The provinces requiring this artificial storage of water are Cordova, San Luis, Mendoza, San Juan, La Rioja, Catamarca, Santiago, Tucuman, Salta, and Jujuy, comprising a total area of 98,878,200 hectares, or 247,195,500 acres, and of which at present there are only 703,077 hectares, or 1,757,682 acres, in cultivation, being scarcely 0.07 per cent. of the entire area. The agricultural prospects of these provinces have been discussed by me in a recent report to the Department on the subject of "Irrigation in the Argentine Republic," and it is not necessary to refer to the subject again at this time.

In regard, however, to the riverine provinces of Santa Fé, Entre Rios, and Buenos Ayres, with their adjoining territories, as I have just said, all the conditions for successful harvests of corn and wheat are abundantly presented. The mean monthly temperatures of Buenos Ayres, derived from observations from 1836 to 1887, as given by Dr. Davis, director of the natural meteorological office, are as follows:

Table showing mean temperature of Buenos Ayres (centigrade).

Month.	Degrees.	Month.	Degrees.
January	24.07	July	10.16
February	23.23	August	12.05
March	21.36	September	13.84
April	16.93	October	16.86
May	13.43	November	20.24
June	11.06	December	22.63

The highest temperature was 39.5°, on the 5th of February, 1877, and the lowest was —2°, on the 14th of July, 1862, the extreme difference being 41.5°.

The relative humidity of the atmosphere, from observations made from 1876 to 1887 at the National College, of this city, is given as follows, in hundredths:

Month.	Humidity.	Month.	Humidity.
January	67.5	July	81.4
February	69.2	August	78.3
March	73	September	76.4
April	76.6	October	73.8
May	79	November	69.3
June	82.1	December	66.3

The daily variation of relative humidity in Buenos Ayres has an amplitude of almost 0.23 in summer and of 0.18 in winter. In autumn and spring it has approximately the mean of these two figures.

In regard to the rain-fall, from the published tables of observations from 1861 to 1888 it appears that the average of each month was as follows:

Month.	Millimeters.	Month.	Millimeters.
January	64.8	August	53
February	65.8	September	81.7
March	95.8	October	87.7
April	75.4	November	69.9
May	76.4	December	101.3
June	76.7	Total for the year	894.1
July	45.7		

Adding the rain-fall by seasons, we have for the spring months (September, October, and November) 239.3 millimeters; for the summer (December, January, and February), 231.9 millimeters; for the autumn (March, April, and May), 247.6 millimeters; and for the winter (June, July, and August), 175.4 millimeters; total, 894.1 millimeters.

The temperature, atmospheric humidity, and rain-fall of the provinces of Santa Fé and Entre Rios correspond so closely to those of the province of Buenos Ayres that it would be almost a repetition of the figures to give them.

INFLUENCE OF THE WINDS.

As you suggest, the trend of the winds in all this portion of the Argentine Republic has no little influence upon the humidity of the atmosphere. Those which blow from the northeast, east, southeast, and south, receiving their moisture from the ocean, are freighted with humidity, and are generally the heralds of falling weather. They are most frequent in the winter and spring and early summer. The southwest and west winds, coming over the Pampas from the Andes, are the "pamperos" of the country. They are local and general—the first is of short duration; the other comes in squalls and gusts, with "dirty" weather, and generally lasts three days; but they are both clearing winds, for the reason that they are always followed by a fall in the barometer, a reduction of the atmospheric pressure, and fine, pleasant weather. While the humid winds are better for crops, the "pampero" is far more conducive to health and light spirits. Although this humidity of the atmosphere of itself would not be sufficient, perhaps, to save a wheat or corn field in a time of drought, yet it assists very materially in sustaining vegetation in the intervals—sometimes more or less protracted—between the usual summer rains. But droughts are not the only thing which the Argentine farmer has to fear. It not unfrequently happens that, after the crops have well ripened, the harvest is injured—sometimes very seriously so—by a persistent succession of rain storms. It was this ill-timed dispensation of liquid favors which last season very nearly ruined the wheat crop of the entire province of Santa Fé, while the drought in this province reduced the yield of the corn crop about one-half.

LOCUSTS AND GRASSHOPPERS.

Besides droughts and unseasonable rains, however, there is another scourge from which Argentine agriculturists even more fervently pray to be delivered, and that is the plague of locusts or grasshoppers. The former misfortunes merely reduce the yield; the latter desolating hosts are only satisfied with devouring the entire harvest. In former years this pest was more frequent than it is now. Indeed, for several seasons, except in isolated portions, the grasshoppers have not made their appearance in either this or the province of Santa Fé, though while I write there is a rumor of threatened invasion in some of the outside agricultural colonies. But all these things are drawbacks, against which, even in the United States, the farming interest has had, and still has, to contend.

PROSPECTIVE DEVELOPMENT.

In regard to the prospective development of the grain industry in this country, of which you inquire, it has already been seen that favorable conditions of both climate and soil are here in unlimited quantities; that, while portions of the country require artificial irrigation for the successful cultivation of cereal crops and other portions are exposed at some seasons to too much, and at others to too little, rain, yet, on the whole, there is nothing to prevent a large and annually increasing acreage in both wheat and corn. Dr. Zatzina, the great statistician of this country, in a recent discussion of this subject, thus concludes:

> The Argentine Republic is a country of an immense area, suitable climate, and fertile soil, and what has already been achieved proves, with proper economic conditions, that it is capable of producing every variety of crops and vegetables; and, although at present not the hundredth part of its surface is under cultivation, it offers to the agriculturists of the world who are seeking to better their conditions a vast field for their enlightened enterprise and activity.

This is all that it needs for a grand development of its agricultural resources: an intelligent immigration from the overcrowded districts of

Europe to open up its millions of acres of virgin soil to the plow. When that comes, every thing else will follow. On frequent occasions heretofore I have expressed my opinion of the agricultural prospects of this country, and every thing goes to confirm it. The amount at present produced in excess of the home demand may seem small and unimportant; but, when we remember that only about fifty years ago the United States had in part to import its breadstuffs and consider the marvelous advance we have made in the production of grain crops since that time, we may readily realize that it will not be many years before the Argentine Republic will be contesting with us for a division of the food supply of Europe.

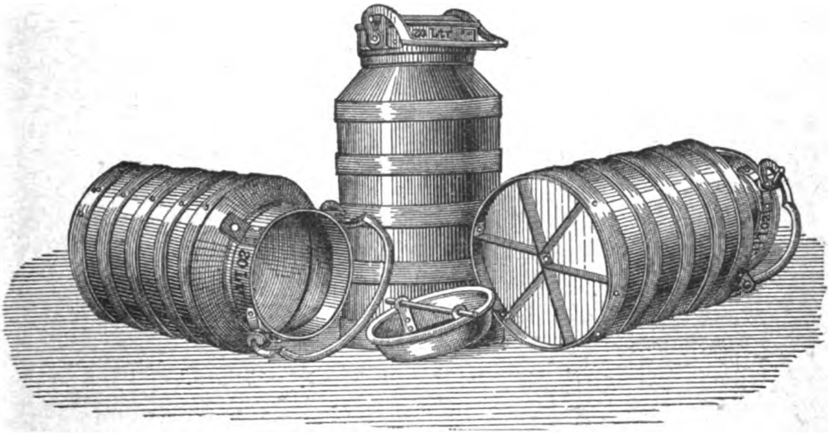
E. L. BAKER,
Consul.

UNITED STATES CONSULATE,
Buenos Ayres, November 3, 1890.

A NEW MILK CAN.

REPORT BY CONSUL-GENERAL EDWARDS, OF BERLIN.

A firm in Lübeck, Carl Thiel & Sons, has placed on the market a new milk can, of which the following is an illustration:



This can, in consequence of a new construction, is absolutely air tight, and has the following improvements: The size most generally used has a capacity of 20 liters and weighs 6 kilograms, or, if preferred, 6½ kilograms. The width of the neck (18 centimeters) is so great that the can can be conveniently and thoroughly cleaned. The cover is very simple in its construction, and hermetically closes the can. When the can is opened, the ring which is used in fastening the cover becomes a convenient handle. The material (triple-tinned sheet-steel) secures the greatest possible durability. For strengthening the can on the opening of the neck is a particularly strong protective ring or hoop. In addition to this there are five other hoops, and for the protection of the bottom against concussion six pieces of hoop iron, standing on edge, are used; this device thoroughly protects the bottom. Naturally, this can will not be needed in all dairies; but where the milk is to be sent a long distance, or where the milk is cooled before being sent out, hermetically sealed cans are to be recommended. What is specially recommended in this can above others is that, while the covers used on other cans, owing to their intricacy, are easily injured and with difficulty repaired, the cover of this can is simple and can always be repaired by a few blows of the hammer.

W. H. EDWARDS,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Berlin, August 15, 1890.

SUGAR-CANE CULTURE IN ECUADOR.

REPORT BY CONSUL-GENERAL SORSBY, OF GUAYAQUIL.

SUGAR HACIENDAS.

The first attempt to grow sugar-cane for the purpose of producing sugar for the market was in the establishment about fifteen years ago of the San Pablo Hacienda, an estate valued at about $300,000.* It was about seven years later that the Valdez Sugar Hacienda was established. Since that time four other haciendas have been established, and now the combined capital invested is not less than $1,050,000. There are now building two other haciendas, which will produce their first crops in 1891, and will represent about $400,000 capital invested when completed, and will be supplied with machinery superior to, and the equipments will be a vast improvement over, that of any of the older establishments. This will bring the total of the capital invested to about $1,450,000. Up to the present every thing has been in favor of the producer of sugar. They have up to the last year been unable to produce as much as was required for home consumption, and the Government import tax on foreign sugars has been so high that the price for home sugars has never been less than $8 per 100 pounds.

From the crop of last season the production of sugar was 6,000,000 pounds, and the estimated crop for 1891 is 10,000,000 pounds; and, as the limit of home consumption was reached at 6,000,000 pounds, there will be a surplus of 4,000,000 pounds, which will inevitably lower the price and at the same time tend to increase the home consumption. These estimates do not embrace the small patches in the interior, from which considerable sugar of an inferior and heavy quality is produced, which, for want of machinery, goes through no refining process.

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* All values in this report are expressed in Ecuadorian dollars, or sucres (1 sucre=85 cents).

COST OF LANDS.

First-class lands convenient to navigable water-courses, the coast, and the railroad can be had at from $10 to $25 per acre.

COST OF CLEARING AND PLANTING.

It is estimated that the cost of clearing the land, when timbered, and preparing for and planting the cane does not exceed $35 per acre, and that on lands not timbered the cost of preparing and planting does not exceed $10 per acre. Both of these estimates include the cost of cane for planting purposes.

HOW PLANTED.

The cane is planted by putting three pieces each in holes 6 inches deep and 18 by 18 inches wide.

THE LIFE OF THE CANE.

A cane field, when planted, is good for twenty-five or thirty years without replanting, the life of the plant depending somewhat on the character and quality of the soil.

HOW CULTIVATED.

The only cultivation is the burning of the débris of the cut cane and weeding once a year.

WHEN PLANTED AND CUT.

The planting is done in February, March, April, and June, and is ready to cut within ten months. After the first year of planting the cutting and milling is begun in July and continues up to the latter part of December.

THE KIND OF CANE PREFERRED.

The Mexican white (soft) is thought to be the best, and it is generally used in planting.

LABOR (KIND AND COST).

The labor is almost entirely native, with a few Jamaicans, and the wages will average about 90 cents per day. When possible to procure it, the West Indian and coolie labor is preferred.

COST OF PRODUCTION.

It costs, by the method now in vogue, to produce refined sugar, about $4 per 100 pounds. It is said that, owing to the lack of adequate machinery, it is necessary to begin cutting and grinding while the cane is green, in order to grind the crop, and that in this way the cost of production is much greater than it would be, if the plants of machinery were large enough to permit them to wait until the cane matured.

MACHINERY.

Nearly all of the machinery is American, but the largest of the two haciendas building will use French machinery altogether; and the claim is made that French sugar machinery is equal to the best American, that the cost is about 25 per cent. less, and that with it it is possible and profitable to produce sugar for export at $1.75 per 100 pounds.

GENERAL REMARKS.

It may be said that there is no waste, or should be none, in the reduction of the juice of the cane to sugar; that the molasses, or glucose, is turned by distillation into rum equal, it is said, to the best Jamaica. It must be confessed that heretofore the art of making sugar has not been studied closely with the view of minimizing the cost of production. The high prices obtained, the enormous profits made, had the effect to encourage the reverse.

On the largest hacienda it is said that for years the molasses, or glucose, was regarded and treated as waste, and as such was thrown into the nearest stream. It is now turned into rum, the major part of which, in turn, is, by the aid of water and essence of anise, made into "mallerca," the common intoxicating beverage of the country.

The growth of the cane is rapid and luxuriant. It attains an average height of 9 to 10 feet and a thickness of from 2 to 3 inches, and matures within ten months after the first planting. No irrigation whatever is required.

The sugar-cane of Peru rarely exceeds 6 feet in height and 1½ inches in thickness, and it is necessary to irrigate. The cane does not mature after first planting under two years, and it is necessary to replant every third or fourth year. Irrigation has the advantage of ripening the cane at will, so as to bring to the mill matured cane only; but this advantage on the part of Peru is more than counterbalanced by Ecuador in the greater yield, and can be made to disappear altogether by putting in plants of machinery capable of grinding the crop in a shorter period of time, so as to allow the cane to ripen in the field.

While the area of land suitable for the cultivation of the sugar-cane contingent to the navigable water-courses, the coast, and the railroad is immense, it seems impossible at this time to obtain data upon which to base an estimate of the amount.

WILLIAM B. SORSBY,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Guayaquil, October 12, 1890.

THE ELECTRO-TECHNICAL EXHIBITION AT FRANKFORT.

REPORT BY CONSUL-GENERAL MASON.

In a report from this office to the Department which was published in CONSULAR REPORTS No. 113 (February, 1890) some account was given of the nature and scope of the International Electro-Technical Exhibition which it had been proposed to hold in this city from June to November of the present year, but which had been, for good reasons, postponed one year, and will be opened on May 15, 1891. We are, therefore, at present within less than seven months of the opening day of this important exposition, and preparations for it are already in active progress.

There being in Frankfort no buildings adapted to the requirements of such an exhibition, it was decided to construct them specially, and for this purpose a site was chosen on the tract of open land which was vacated by the railway companies, when they withdrew from their separate passenger stations and united in the great new union depot in 1888. The exhibition buildings will, therefore, be located between the chief railway station and the city on ground supplied with water, gas, and sewerage, as well as convenient tracks for the transportation of heavy machinery which may arrive by rail.

This necessity of planning and constructing special buildings made it also desirable that the management should know some time in advance the approximate number and character of the exhibits to be accommodated, and, accordingly, the entry lists were closed at the end of July last.

There are now on the books something more than two hundred exhibitors, representing principally, of course, Germany, but also in a large degree Great Britain, France, Belgium, Austria, Switzerland, Russia, and the United States. In view of the important nature of this competition and the practical results which it may entail, it was to have been hoped that our country would have been more largely represented. The two American companies which have entered, however, rank among the foremost and most important in the United States, and, as they will be supplemented by an imposing display by the Edison Phonograph Company, of London, it may be hoped that the American exhibit will be, in character at least, worthy of the occasion. But there is a feeling of disappointment here that some of our electricians, who have done so much for the success of previous exhibitions on both sides of the Atlantic, are not to be represented.

The classification of exhibits has been slightly modified since the earliest announcements. They are limited to such as may be properly grouped under the following heads, viz: (1) Apparatus for the production of electricity; (2) transmission, with all transmitting and supplementary appliances; (3) accumulating and transforming apparatus; (4) transmission of electric power for industrial purposes; (5) motors for electro-technical purposes; (6) electric lighting, with a special subdivision for fittings; (7) telegraphy and telephony; (8) electric signaling for railway, marine, mining, and military purposes; (9) electro-metallurgy and electrolysis; (10) electrical instruments for measurement, acoustic, and optical purposes; (11) electricity, as applied to medicine and surgery; (12) the literature of electro-technology.

The entry list shows that in each of these departments the display will represent the latest and highest achievements of electrical science. There will be exhibited five different types of electric railways and an electric yacht, or launch, adequate in size to carry one hundred persons. There will be, also, five different systems of long-distance transmission for electric power, one of which, it is promised, will transmit 300 horse-power a distance of 50 miles.

Another feature of the exposition will be a series of twenty workshops adapted to different forms of mechanical work and each equipped with the most recent and highly improved electrical tools and appliances. These shops will be manned by skillful workmen and kept in operation during exhibition hours. Finally, there is to be an extensive scientific and industrial laboratory supplied with every material and complete apparatus for experiment and illustration.

The exhibition will be, in scope and purpose, purely technical. It offers no medals or prizes; no award except the verdict which will be rendered concerning each exhibit by its board of experts, who will make an exhaustive study of the exhibition and present their conclusions in a detailed report. This board will be composed of leading electricians from all countries which participate in the exhibition—men who are recognized as authorities in their profession; and it is expected that their report will constitute a practical text-book for electrical constructors and a guide for municipalities, companies, or individuals who are contemplating the application of electricity to any industrial or scientific purpose. It will be the aim of this report to consider fully and fairly all that has been achieved thus far to subordinate electricity to the practical uses of life, point out what yet remains to be invented or improved, and demonstrate what progress has been made since the last international exhibition of this kind was closed.

As was intimated in my former report, the results of the forthcoming competition are likely to be of important moment to the successful exhibitors. In all that relates to the use of electricity for lighting and as a motive power western Germany is behind Italy and several other countries of Europe. The people are by nature and education conservative. They appreciate the advantages of electric railways and illuminators, but they have waited through the experimental stages of the science for the best and most economical system. There are many municipalities, manufacturers, and street railway companies that have in principle adopted electrical lighting systems and motors, and they are waiting for the verdict of this exhibition to decide which particular machine or method they shall employ. Finally, no effort will be spared to fully utilize the exposition as an educational opportunity. A letter has recently been addressed by the board of managers to the minister of public instruction at Berlin, setting forth in detail the prospects of the enterprise and the advantages that it will offer to students of technology. This will be communicated to schools and universities throughout the Empire, and Frankfort will become during the vacations of next summer a meeting ground for hundreds of teachers and students in the fascinating and important field of electrical science.

FRANK H. MASON,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Frankfort, October 31, 1890.

FOREIGN TRADE OF PARA.

REPORT BY CONSUL KERBEY.

I have the honor to transmit herewith a comparative statement of the export of rubber from this consular district to the United States and Europe, respectively, compiled carefully from the official records, showing the extent of this valuable trade, giving the names of the firms and the business of each.

Attention is called to the fact that two-thirds of this valuable product is exported to the United States, while more than two-thirds of the goods of various kinds imported into the district are from Europe. It is difficult to get any figures as to the character and extent of the goods that are imported, though I am looking after it.

As bearing on this, I send herewith a copy of the manifest of the cargo of the English steam-ship *Anselm,* which arrived from Lisbon this day. It will indicate in a manner the kind of goods generally imported about weekly by steam-ship loads. This is almost exclusively from Portugal.

Table showing the exportation of rubber from the Para consular district from January 1 to September 30, 1890.

Exporters.	To United States.				
	Fine.	Medium.	Sernamby or coarse.	Peru caucho.	Total.
	Kilograms.	*Kilograms.*	*Kilograms.*	*Kilograms.*	*Kilograms.*
Pusinelli, Prusse & Co	549,726	59,426	234,502	65,422	906,076
La Rocque da Costa & Co	429,444	94,895	460,885	47,340	1,032,654
Campanhia Mercantil	499,895	93,582	338,695	3,815	935,987
Robinson & Norton	557,272	93,074	312,991	56,908	1,020,245
J. Vianna & Co	314,892	75,967	107,062	3,618	501,539
R. R. Sears & Co	305,897	38,143	168,360	....	512,400
Singlehurst, Brock & Co	76,754	11,708	72,906	179,772	361,140
W. Brambeer & Co	92,886	8,500	113,212	....	214,578
Other exporters	38,686	665	38,679	41,904	119,934
Exported direct from Manáos	669,802	145,393	248,221	22,145	1,805,561
Total	3,554,234	621,443	2,095,513	420,924	6,693,114

Table showing the exportation of rubber from the Para consular district, etc.—Continued.

Exporters.	To Europe.					Grand total.
	Fine.	Medium.	Sernamby or coarse.	Peru caucho.	Total.	
	Kilograms.	*Kilograms.*	*Kilograms.*	*Kilograms.*	*Kilograms.*	*Kilograms.*
Pusinelli, Prusse & Co	665,450	106,438	123,256	64,545	959,689	1,896,745
La Rocque da Costa & Co	231,247	26,396	98,702	1	356,346	1,389,000
Campanhia Mercantil	232,150	32,000	127,500	....	391,650	1,327,637
Robinson & Norton	170	....	300	....	470	1,000,715
J. Vianna & Co	117,554	20,787	89,307	....	227,648	729,187
R. R. Sears & Co	30,700	960	4,791	....	36,451	548,851
Singlehurst, Brock & Co	75,182	13,386	21,890	7,745	118,203	473,343
W. Brambeer & Co	121,454	13,600	848	....	135,902	350,480
Denis Cronan & Co	121,210	23,970	46,920	....	192,100	192,100
Other exporters	108,008	14,530	51,105	22,662	196,305	316,239
Exported direct from Manáos	961,008	207,222	308,596	198,425	1,675,751	2,761,312
Total	2,664,133	459,789	873,215	293,378	4,290,515	10,983,629

Table showing the ports of departure and destination of rubber exports.

Ports of departure.	To New York.	To Europe.				
		Liverpool.	Havre.	Nantes.	Lisbon.	Total.
Para	5,607,553	2,391,533	198,711	24,520	....	2,614,764
Manáos	1,084,275	1,393,846	270,200	....	450	1,664,496
Itacoatiara	1,286	613	10,642	....	....	11,255
Total	6,693,114	3,785,992	479,553	24,520	450	4,290,515

NOTE.—The amount of stock on hand September 30 was 771,000 kilograms.

Specimen manifest of steam-ship Anselm (Booth line), from Lisbon, arrived in Para October 11, 1890.

Articles.	Quantity.	Consignees.
Wine......barrels	30	B. A. Antunes & Ca.
Do......do	10	Moreira dos Santos & Ca.
Potatoes......boxes	25	Cunha, Muniz & Gouvea.
Onions......do	30	Do.
Wine......barrels	30	Do.
Macaroni......boxes	10	Do.
Wine......barrels	5	Silva, Monteiro & Ca.
Pears......boxes	4	R. J. da Cruz & Ca.
Wine......barrels	15	A. Alves dos Santos & Ca.
Macaroni......boxes	30	Santos Sobrinho & Ca.
Wine......barrels	30	Do.
Canary-seed......sacks	2	Do.
Anise-seed......do	10	Do.
Potatoes......boxes	30	Do.
Fish......do	30	Do.
Sweet-oil......cases	6	Do.
Do......do	4	F. J. Alves & Ca.
Tomato jam......do	4	Do.
Onions......boxes	13	Do.
Potatoes......do	15	Do.
Wine......barrels	10	Do.

Specimen manifest of steam-ship Anselm (Booth line), from Lisbon, etc.—Continued.

Articles.	Quantity.	Consignees.
Macaroni..........boxes...	15	M. J. Rodrigues & Ca.
Peas..........sacks...	15	Do.
Onions..........boxes...	5	Do.
Do..........do.....	135	M. M. Hogueiro & Ca.
Anise-seed..........do.....	5	Do.
Canary-seed..........do.....	5	Do.
Macaroni..........do.....	35	Do.
Hulled barley..........barrels...	10	Do.
Beans..........sacks...	100	Do.
Fruit..........do.....	65	Do.
Vinegar..........barrels...	30	Do.
Wine..........do.....	40	Do.
Potatoes..........boxes...	10	P. da Costa & Serra.
Lard..........cases...	1	Do.
Pears..........boxes...	2	Do.
Grapes..........do.....	6	Do.
Apples..........do.....	5	Do.
Onions..........do.....	5	A. Brito & Ca.
Wine..........barrels...	20	A. J. Sardo & Ca.
Onions..........boxes...	20	Do.
Potatoes..........do.....	20	Do.
Onions..........do.....	35	Castro Marques & Ca.
Potatoes..........do.....	20	Do.
Macaroni..........do.....	15	Do.
Hulled barley..........barrels...	5	Do.
Onions..........boxes...	45	Machado Rocha & Ca.
Macaroni..........do.....	20	Do.
Potatoes..........do.....	25	Do.
Wine..........barrels...	80	Do.
Beans..........sacks...	4	Do.
Gold coin..........boxes...	1	Do.
Apples..........do.....	40	Do.
Onions..........do.....	25	Calheiros & Oliveira.
Lime..........barrels...	20	Do.
Hulled barley..........do.....	20	Do.
Vinegar..........do.....	10	Do.
Beans..........sacks...	100	Do.
Sweet-oil..........cases...	22	Do.
Ginger..........do.....	10	Do.
Onions..........boxes...	15	Coutinha Braga & Ca.
Macaroni..........do.....	35	Do.
Hulled barley..........do.....	20	Do.
Onions..........do.....	20	Araujo & Ca.
Potatoes..........do.....	15	Do.
Macaroni..........do.....	10	Do.
Sweet-oil..........cases...	12	Do.
Oil..........barrels...	10	Do.
Onions..........boxes...	20	J. R. Gill & Ca.
Potatoes..........do.....	30	Do.
Macaroni..........boxes...	25	Do.
Hulled barley..........barrels...	15	Do.
Beans..........sacks...	50	Do.
Apples..........boxes...	2	Do.
Onions..........do.....	10	Souza, Irmao & Ca.
Potatoes..........do.....	20	Do.
Macaroni..........do.....	10	Do.
Tomato jam..........do.....	1	Do.
Sweet-oil..........cases...	2	Do.
Hulled barley..........barrels...	5	Do.
Onions..........boxes...	5	Carvalhos & Ca.
Potatoes..........do.....	5	Do.
Cod-fish..........do.....	20	Do.

Specimen manifest of steam-ship Anselm (Booth line), from Lisbon, etc.—Continued.

Articles.		Quantity.	Consignees.
Onions	boxes	10	Coelho d'Azevedo & Ca.
Potatoes	do	20	Do.
Macaroni	do	10	Do.
Hulled barley	barrels	5	Do.
Onions	boxes	5	M. J. Rodrigues.
Macaroni	do	8	Do.
Hulled barley	sacks	2	Do.
Onions	boxes	31	J. Vianna & Ca.
Potatoes	do	31	Do.
Wine	barrels	50	Do.
Do	cases	50	Do.
Beans	sacks	100	Do.
Onions	boxes	20	Castro, Irmao & Ca.
Grapes	do	20	Do.
Beans	sacks	20	Do.
Vinegar	barrels	10	Do.
Apples	boxes	5	Alves Carneiro & Ca.
Grapes	do	5	Do.
Figs	cases	2	G. d'Araujo & Ca.
Wine	do	30	Do.
Do	barrels	100	Do.
Onions	boxes	40	Do.
Potatoes	do	20	Do.
Fruit	cases	22	Do.
Sweet-oil	do	10	Do.
Vinegar	barrels	10	Do.
Wine	do	20	L. d'Araujo & Ca.
Grapes	boxes	20	Barros & Vianna.
Do	do	32	M. J. Pereira & Ca.
Apples	do	2	Do.
Grapes	do	2	Joaquim Thiago Pereira.
Hardware	do	6	Coimbra Pego & Ca.
Money	packages	1	A. J. Acris & Ca.
Fruit	boxes	6	A. D. da Silva Guimaraes.
Wine	barrels	22	J. C. d'Abrunhosa.
Grapes	boxes	10	Do.
Beans	sacks	300	Alfredo Barros & Ca.
Onions	boxes	30	Do.
Oil	barrels	10	Do.
Wine	do	40	Do.
Money	boxes	1	Do.
Canned goods	cases	212	Do.
Figs	boxes	2	Do.
Fruit	do	2	Do.
Wine	barrels	17	Pinto de Couto & Ca.
Machinery	pieces	7	H. & Augusto de La-Rocque.
Onions	boxes	15	M. R. de Oliverira & Ca.
Canned goods	do	28	Do.
Onions	do	5	A. Gonçalves Leitao & Irmao.
Potatoes	do	10	Do.
Beans	sacks	24	Do.
Macaroni	boxes	4	Do.
Wine	barrels	5	Do.
Do	do	10	J. M. dos Santos & Ca.
Lard	cases	1	Do.
Onions	boxes	5	Domingos J. de Carvalho & Ca.
Cod-fish	do	10	Do.
Onions	do	40	J. A. Freitas & Ca.
Fish	do	40	Do.
Onions	do	15	S. Pereira & Ca.
Macaroni	do	15	Do.

Specimen manifest of steam-ship Anselm (Booth line), from Lisbon, etc.—Continued.

Articles.		Quantity.	Consignees.
Onions	boxes	10	Pereira, Fernandes & Ca.
Potatoes	do	10	Do.
Canned goods	do	5	Do.
Wine	pipes	0½	Do.
Lard	cases	2	Nunes da Silva & Irmao.
Onions	boxes	20	J. Ferreira Barbosa.
Potatoes	do	20	Do.
Wine	barrels	10	Do.
Fish	boxes	14	Do.
Wine	cases	1	Silva Santos & Ca.
Fruit	do	2	Do.
Onions	boxes	30	Leite Silva & Ca.
Potatoes	do	30	Do.
Beans	sacks	60	Do.
Canned goods	cases	1	Do.
Wine	barrels	5	Do.
Fish	boxes	10	Do.
Shoes	do	1	Duraes Junior & Ca.
Wine	barrels	55	M. J. Gonçalves & Ca.
Money	packages	1	Do.
Vinegar	barrels	2	Pereira Dias & Ca.
Wine	do	20	J. M. Vidigal.
Fruit	boxes	6	Rendeiro & Ca.
Shoes	cases	1	J. A. Carrapatoso & Ca.
Do	do	1	F. de Mendonça & Ca.
Cabbages	crates	8	Antonio Ferreiro Pinto.
Wine	barrels	10	Pereira Lopes & Ca.
Do	do	6	Turri & Leal.
Do	pipes	0¼	R. Barros & Ca.
Grapes	boxes	8	Do.
Row-boat		1	Do.
Figs	boxes	2	Do.
Wine	barrels	2	R. da Silva Villar.
Do	do	10	M. A. V. d'Andrade.
Do	do	10	M. Gonçalves Pereira & Ca.
Onions	boxes	40	R. Vieyra & Ca.
Wine	barrels	15	Do.
Onions	boxes	15	Gonçalves de Britto & Ca.
Macaroni	do	26	Do.
Sweet-oil	cases	5	Do.
Macaroni	boxes	20	Do.
Onions	do	10	Pires Teixeira & Ca.
Potatoes	do	20	Do.
Cod-fish	do	20	Do.
Macaroni	do	10	Do.
Salt	sacks	200	Do.
Lime	barrels	5	Do.
Pepper	sacks	1	Do.
Grapes	boxes	20	Domingos da Motta Marques.
Wine	barrels	35	J. M. da Silva Miranda.
Do	do	12	Ricardo & Formigal.
Grapes	boxes	7	Teixeira de Mesquita & Ca.
Wine	barrels	5	N. Pontes & Correa.
Seeds	do	2	Do.
Drugs	boxes	5	Do.
Acid	cases	10	Do.
Grapes	boxes	4	Azevedo & Ca.
Tomato jam	cases	1	M. R. Caetano.
Sausages	boxes	1	Do.
Fish	do	1	Do.
Olives	cases	1	Do.

Specimen manifest of steam-ship Anselm (Booth line), from Lisbon, etc.—Continued.

Articles.		Quantity.	Consignees.
Onions	boxes	5	J. A. da Cunha.
Drugs	cases	1	Machado & Ca.
Grapes	boxes	5	F. O. Pereira & Filhos.
Apples	do	5	Do.
Wine	barrels	20	G. Guimaraes & Ca.
Wood	volumes	10	Martins & Vieyra.
Acid	cases	6	S. Jorge d'Almeida & Ca.
Seeds	barrels	1	Do.
Drugs	cases	4	Do.
Grapes	boxes	20	A. F. d'Oliveira & Ca.
Fish	do	46	Do.
Onions	do	20	Do.
Fruit	do	20	Do.
Canned goods	do	15	Do.
Sweet-oil	cases	20	Do.
Garlic	packages	10	Do.
Oil	barrels	10	Do.
Figs	boxes	2	Do.
Hulled barley	barrels	50	Do.
Grapes	boxes	0¼	José Coimbra.
Wine	pipes	1	B. F. Gonçalves.
Grapes	boxes	0½	J. Bastos & Ca.
Do	do	14	Teixeira Pinto & Ca.
Do	do	9	J. Siqveira Rodrigues.
Do	do	4¼	J. M. da Silva Matta & Ca.
Apples	do	2	José A. de Pinho & Ca.
Grapes	do	2¾	Do.
Furniture	cases	2	Vieyra Fiuza & Ca.
Wine	barrels	10	Silva Sá & Ca.
Do	do	10	Santos & Oliveira.
Do	do	20	Domingos Taveira Barboso & Ca.
Fruit	boxes	2	G. A. Botelho.
Apples	do	25	Lopes Junior & Ca.
Wine	barrels	40	F. J. da Silva & Ca.
Lime	do	20	Do.
Apples	boxes	2	J. A. Mattos Cunha.
Grapes	do	1	Do.
Do	do	20	J. dos Santos Carradas.
Onions	do	10	J. A. da Costa & Ca.
Fish	do	15	Do.
Macaroni	do	18	Do.
Stone	volumes	36	Manoel Pedro & Ca.
Stoves	cases	1	C. J. de Figueiredo & Ca.
Wine	barrels	30	L. de Figueiredo & Ca.
Corks	sacks	2	Do.
Wine	barrels	15	Pereira Lima & Ca.
Do	do	6	M. I. Pereira Guimaraes.
Books	boxes	1	Heraclito Nina & Ca.
Sundries	do	1	A. D. da Silva Guimaraes.
Canned goods	cases	60	To order.
Beans	sacks	40	Do.

This cargo is almost entirely from Portugal. The English ship following will bring a cargo from that country or from Germany, from whence a majority of the dry goods, etc., come, because they are cheap. Our own merchants could (if they would try) get up the same goods, and be able to compete with these and still make money.

It will be observed that the principal imports from Portugal are lime, onions, and macaroni.

Enormous quantities of canned goods come from England, France, and Germany.

JOSEPH O. KERBEY,
Consul.

UNITED STATES CONSULATE,
Para, October 13, 1890.

FOREIGN COMMERCE OF FRANCE.

REPORT BY COMMERCIAL AGENT GRIFFIN, OF LIMOGES.

There have just been published the official figures of the importations and exportations for the month of May and the first five months of the years 1889 and 1890.

It is exceedingly interesting to compare the figures of the two years, especially remembering the prophecy that 1890 would be an exceptional year, owing to the exposition.

I give a table of the importations and exportations for the month of May of each year:

Articles.	Imports.		Exports.	
	1889.	1890.	1889.	1890.
	Francs.	*Francs.*	*Francs.*	*Francs.*
Food products	130,792,000	128,063,000	87,698,000	72,002,000
Raw materials	250,310,000	250,971,000	84,643,000	74,915,000
Manufactured articles	49,972,000	60,298,000	168,059,000	171,990,000
Miscellaneous articles	12,924,000	11,181,000	18,229,000	15,915,000
Total	443,998,000	450,513,000	358,629,000	334,822,000

A glance at the tables for the month of May will show that there has been a gain in the importations for the year 1890 of 6,515,000 francs, while there has been a falling off in the exportations of 23,807,000 francs. It is important to note just where the gains and the losses were. Under importations we notice that there was a loss in 1890 of 2,729,000 francs in food products; in raw material there was a gain of 661,000 francs; in manufactured articles the greatest gain took place, which was 10,326,000 francs; there was a falling off in miscellaneous articles of 1,743,000 francs. In exportations there was a marked falling off in every thing for the month of May excepting manufactured articles. For example, the heaviest loss was in food products, which amounted to 15,696,000 francs; in raw materials there was a deficiency of 9,728,000 francs; and in miscellaneous articles the exportations were 2,314,000 francs. The only gain was in manufactured articles, which amounted to 3,931,000 francs. The total falling off in exportations amounted to 27,738,000 francs, against a gain of 3,931,000 francs. If we now compare the first five months of the years 1889 and 1890, we will see that there was a general gain both in importations and exportations, excepting in the importation of food products and the exportation of raw material and miscellaneous merchandise. The following table will show the gains and losses for the first five months:

IMPORTS.

Articles.	1890.	1889.	Gain.	Loss.
	Francs.	*Francs.*	*Francs.*	*Francs.*
Food products	582,949,000	590,938,000		7,989,000
Raw materials	1,032,008,000	902,603,000	129,405,000	
Manufactured articles	253,870,000	234,625,000	19,245,000	
Miscellaneous articles	49,799,000	49,603,000	196,000	
Total	1,918,806,000	1,837,769,000	148,846,000	7,989,000

EXPORTS.

Food products	342,645,000	307,597,000	35,048,000	
Raw materials	307,843,000	317,689,000		9,846,000
Manufactured articles	805,777,000	750,508,000	55,269,000	
Miscellaneous articles	88,945,000	88,531,000		4,586,000
Total	1,530,210,000	1,464,325,000	90,317,000	14,432,000

General average per month for the first five months.

Articles.	Imports.		Exports.	
	1890.	1889.	1890.	1889.
	Francs.	*Francs.*	*Francs.*	*Francs.*
Food products	116,589,800	118,187,600	68,529,000	61,519,400
Raw materials	206,401,600	180,520,600	61,568,600	63,557,800
Manufactured articles	50,774,000	46,925,000	161,155,400	150,101,600
Miscellaneous articles	9,959,800	9,920,600	16,789,000	19,906,200
Total	383,725,200	355,553,800	308,042,000	295,085,000

In looking over the general average per month for the five months there are some notable facts to be observed: First of all, May, 1890, is above the average in both importations and exportations; that in exportations the great gains have been made in raw materials and manufactured articles, and the principal loss has been in food products. In exportations there has been an advance, though not very marked, in food products and manufactured articles; in raw materials and miscellaneous articles there has been a marked decline.

WALTER T. GRIFFIN,
Commercial Agent.

UNITED STATES COMMERCIAL AGENCY,
Limoges, July 5, 1890.

AGRICULTURAL IMPLEMENTS IN FRANCE.

REPORT BY COMMERCIAL AGENT GRIFFIN, OF LIMOGES.

The department of agriculture in France holds every year what are called "concours régionals." These are nothing more than fairs held in the different agricultural regions to encourage and stimulate agriculture. Prizes are given, medals awarded, and different tests are made to develop the best interests of the land cultivators. At these fairs cattle, sheep, hogs, poultry of all kinds, grains, fruits—in fact, every thing that the land produces is exhibited, and the rewards are given according to merit. One of the most important of these concours was held at Perigueux during the month of June.

Knowing that all the agricultural instruments of France would be exhibited, I visited Perigueux with the sole idea of reporting on French machinery and the demand or market that might be shown for American implements. It was surprising to note the very poor display of machinery, though the best houses in France were represented. There were several foreign manufacturers represented, but the only prize awarded was given to the Planet Horse-hoe and Cultivator Company, of Philadelphia, in a trial against fourteen competitors.

We enumerate in the following order American agricultural machinery and implements that, if properly introduced, would find a most excellent market in France.

MOWERS, REAPERS, AND BINDERS.

First of all, there is a great demand for good mowers, reapers, and binders. At the fair there were but two mowers on the ground that were not of American make—one was French and the other English. An examination showed that the French and English machines were fully one-third heavier, their construction was more crude, the workmanship was poorer, while there was only a difference of $5 in the price between the American and those of foreign make. These latter were made after the fashion of patents that have expired in the United States. It is certain that no English or French mower or reaper could compete at present with the American models in beauty, workmanship, and, we believe, in price.

HAY TEDDERS AND HORSE-RAKES.

Next in importance are hay tedders. These implements are not as common in America as in France. Here the weather is so uncertain and the soil so moist during the hay season that it is absolutely necessary to keep the hay moving by turning and spreading it in order to have it dry enough to stack or house. It is no uncommon sight to see numbers of men and women with short wooden forks passing over the fields after the mowers and constantly turning the hay until it is fit to draw off. This will show how necessary a tedder is. There was but one in the whole exhibition; that was a ridiculously heavy, poorly constructed machine, and in many fields impracticable. A good tedder would be a boon to French hay-makers, and would find a ready market.

Horse-rakes are now being used with considerable success. There are one or two manufacturers in France and several in England; but rakes coming from the United States have the preference, as they are more easily worked by man and horse than any other, and are cheaper in price. With these advantages there ought to be no difficulty in gaining the whole market.

HAND-TOOLS.

There is a decided call for hand-tools of American make. The writer was standing near where implements were sold and heard farmers repeatedly ask for American rakes, forks, and garden tools. Being anxious to know the reason, the question was asked "why the American tools were preferred." The answer was: "They are better made, lighter in weight, and better wood is used in handles."

We may include the scythe before we leave the harvest field. There are many small proprietors who will never be able to buy a machine, as there are many rough, rocky, and uneven places where a machine could not be worked; there it is necessary to use a scythe. The style generally in use has a very short, heavy blade, much like what is used in the United States for cutting brush; but it probably would be easy to demonstrate the advantages of a scythe and snath as used in America, especially in cutting the heavy grass of the lowlands.

HAY PRESSES.

These important machines are almost entirely unknown, and yet hay is bound in bundles, much like threshed oat or wheat straw, and sold that way. After conversing with several dealers in farm machinery, it is certain that hay presses worked by hand and horse power can be marketed in France; but it will take some time, and require care in the introduction,

THRESHERS AND CLEANERS.

These are in great demand. Grain is usually threshed now by small companies, who unite in purchasing a movable steam-engine, with threshing and cleaning attachments, who go around from farm to farm threshing and cleaning for wages or toll. Horse machines are rare, but would sell quite readily. The prices at which the steam machines are sold are from $1,500 to $3,000. Good horse machines could be sold to smaller proprietors who can not afford a large steam-power, because of the price, although the manufacture of steam machines is quite extensive.

DRILLS.

Drills of an inferior order, with limited and imperfect facilities for sowing all kind of grain, are already introduced into France from England. It is certain that machines which will sow any kind of grain, and at the same time have attachments for sowing chemical fertilizers and grass seed, have an advantage over heavier machines that do not sow regularly and are liable to soon get out of order.

PLOWS AND HARROWS.

These are made in great variety in France, but all, as a rule, are modifications of the same pattern. Subsoilers and plows of that description are not well known here. Harrows are mostly manufactured in England, and there is only a call here for the cheaper grades; other models might be introduced.

CULTIVATORS AND HORSE-HOES.

These implements are very much needed. The styles in ordinary use have been antiquated in the United States for a long time. As before stated, the horse-hoe, or cultivator, that took the prize at Perigueux, and was far superior in workmanship, design, and practical use, was of American make. The manufacturer said that there was an excellent outlook for these articles in France.

GARDEN TOOLS.

All of these are needed, especially spades and shovels (the long handled are generally preferred). Those with rounded edges are mostly in favor, but all are used.

WOODEN ARTICLES.

There is a great demand for wooden pails. Wooden measures of all sizes, after the metric system, are greatly in demand.

BARBED AND RIBBON WIRE.

Of late this kind of fencing has been in great demand. The supply, at present, comes mostly from England.

MISCELLANEOUS ARTICLES.

There is a demand for all kind of small tools, such as hoes, potato diggers, garden rakes, spades, etc., which could find a ready market in France, as they are frequently called for and sell when shown.

It is not realized in the United States by the manufacturers how necessary it is to have the right parties introduce machinery of American make. A certain machine manufactured in America was put on the French market five years ago; during all that period not a dozen were sold, although it was placed in the hands of one of the best French houses. Last year the factory sent over an American, a man who could not speak French, but who could show off the machine to its best advantage, and this year five hundred machines have been sold and there is a good demand for more. This proves the fact—and is in accord with the experience of the writer and of all with whom he has spoken—that Americans must sell American machinery. To simply appoint a French house as agent and expect the orders to come in is as practical as it would be to go to Sahara and wait for rain. But when a live American comes (if he can speak French so much the better, but it is not absolutely necessary), and shows in the field the workings of the machine and practically demonstrates the advantages, there is hardly an American agricultural machine that is a success in the United States that would not be a success in France.

WALTER T. GRIFFIN,
Commercial Agent.

UNITED STATES COMMERCIAL AGENCY,
Limoges, July 7, 1890.

THE MINES OF HUELVA, SPAIN.

REPORT BY CONSULAR AGENT CATLIN.

The great copper zone which traverses the province of Huelva extends from Castilla de las Guardas, 40 kilometers west-northwest of Seville, to Ajustel, in Portugal, a distance of more than 200 kilometers, with an average width of 25 kilometers.

In this zone, among others less important, are found the mines of Rio Tinto, Tharsis, La Zarza, Sotiel-Coronada, Lagumza, Peña de Hierro, La Joya, Poderosa, etc., all having great analogy in their ores, which are found in great masses and at little distance from the surface, at which point they generally terminate in immense crests of oxide of iron.

The amount of copper in these ores is very variable, but the great proportion may be taken at 2 to 3 per cent., a poverty of metal which is only compensated by the abundance of ore and the method of extraction and treatment.

This great metalliferous zone, which occupies about 2,000 square kilometers, is tapped to the port of Huelva by three lines of railway—the Rio Tinto Railway, the Tharsis, and the Bintron to San Juan del Puerto. The two last are also open to public service. In the more westerly part of the province another railway, elevated for half its length, carries ore to the river Guadiana.

The general characteristics of the ore are: Sulphur, 50 to 51 per cent.; iron, 40 to 41 per cent.; silicate, 4 to 5 per cent.; copper, 1 to 3 per cent.; with variable insignificant quantities of gold, arsenic, silver, antimony, and other metals. The so-called rich ore, with 2 to 3 per cent. of copper, is exported; and the poor, of about 12 per cent., is treated by open air calcination. The amount shipped is about 700,000 tons yearly.

The mines of this province were worked by the Phœnicians and the Romans, neglected by the Moors, and nearly so by the Spaniards, until the middle of the last century, when the attention of the Government was seriously directed towards them. But the immense deposits only began to yield a fair part of their treasures, when twenty-five years ago foreign companies bought up the great mines and began to develop them. In 1866-'67 the number of steamers which loaded ore in this port was 38, with 11,514 tons, while in 1889-'90 the number was 727, with 520,494 tons. In 1866 the custom-house collected 315,000 pesetas and in 1886 about 4,000,000 pesetas.

The capital invested by the different mining companies is 254,560,288 pesetas. They pay in taxes to the public treasury 1,749,624 pesetas annually; in wages, 20,763,125 pesetas; and buy stores in this country for about 8,250,000 pesetas yearly. The number of men employed is from 17,000 to 18,000.

Besides the copper mines, there are a great many small workings of manganese, of which about 8,000 tons were shipped in 1889-'90. The principal mines are near Valverde del Camino. Near Aracena ore containing antimony and silver is worked to a small extent and sent down to Seville.

There is gold in the quartz rocks and streams, but it has not been found in any workable quantity.

Table showing cost per ton of calcination of pyrites for sulphur.

Description.	Cost.	Description.	Cost.
	Pesetas.		*Pesetas.*
Extraction	5.00	Removal of calcined ore	0.26
Trituration	.34	5 per cent. interest on plant, etc	.39
Carriage to furnaces	.42	Total	8.05
Work	1.17		
Repairs	.47		

Table showing cost per ton of calcination for copper.

Description.	Cost.	Description.	Cost.
	Pesetas.		*Pesetas.*
Coal	8.67	Repairs	0.42
Salt	3.31	Water, light, etc	.23
Iron for precipitation	2.73	Various	.26
Stores	.18	5 per cent. interest on plant, etc	1.10
Work	5.73	Total	24.56
Salaries	1.93		

The length of railways constructed by the mining companies is as follows:

	Kilometers.
Rio Tinto to Huelva	83
Tharsis to Huelva	46
Los Silos to Tharsis	30
Zalamea to San Juan del Puerto	57
Sotiel-Coronada to Valverde	13
Cabezas de Pasto to La Laja	20

The lines from Tharsis to Huelva and Zalamea to San Juan del Puerto are open to public service. That of Sotiel-Coronada joins the Zalamea line at Valverde, and the line from Cabezas de Pasto, half elevated, finishes at the loading place of La Laja, in the river Guadiana.

All these lines are narrow gauge, and the two first terminate in splendid piers, which enable their companies to load a steamer of 1,500 tons in time for her to arrive and leave the port loaded in one tide.

The amount of land bought by the mining companies, adjoining and including their mines, is as follows:

	Hectares.
Rio Tinto Company (limited)	6,432
Tharsis Sulphur and Copper Company (limited):	
Tharsis Mine	11,000
Los Silos Mine	4,750
Companhia Portuguesa das Minas de Huelva	4,000
Sociedad de Minas de Cobre de Alosuo	1,159
La Companhia Sotiel-Coronada	234
Bede Metal and Chemical Company (limited)	307
Total	27,882

The amount of land bought up by the smaller companies brings the total up to 31,182 hectares, besides which the different companies between them rent 10,882 hectares. The Tharsis Company appears as the largest landed proprietor, but, instead of indemnifying the nearest farmers, it has preferred to buy the land and cultivate it.

The number of men employed are: Miners and workmen, 17,783; with their families, 38,100; or 58 per cent. of the inhabitants of the eighteen principal mining townships.

JOHN R. CATLIN,
Consular Agent.

UNITED STATES CONSULAR AGENCY,
Huelva, November 5, 1890.

PRODUCTS AND TRADE OF ICELAND.

REPORT BY CONSUL BRUCE, OF LEITH.

The following extract in reference to Iceland, taken from notes recently published in Edinburgh, may be of value, presenting, as it does, in brief, several facts relative to Iceland, not only in regard to the crops and travel of 1890, but also as to the manner of living, condition of roads and bridges, modes of travel, and harvest festivals in that remote island.

Our summer in Iceland has been rather cold, as a whole, especially June and July. At the same time we had too little rain for the grass. During August and the first half of September the weather has been very changeable and wet. Altogether, we can not call this summer very agreeable. The crops have, however, reached about an average. When we talk of crops, we mean almost exclusively the hay crop. The sources of the hay crop are two—the home-field (*tún*) and the out-field (*engi*). The home-field is the only cultivated part, and always surrounds the farm-houses. Its extent is from 4 to 40 acres, according to the size of the farm. One peculiarity of many of these home-fields is that they are studded with hummocks, or knobs, of earth, which greatly interfere with the cutting and the drying of the hay, and they seldom yield as good grass as the level parts. In many parts people have, therefore, now begun to level the hummocks by paring off the greensward, digging up the hummocks with a spade and leveling them, and then covering the plat thus prepared with the pieces pared off. Primitive as the cultivation of the home-field is, it makes the hay gathered from it far more valuable than that of the out-field. The yield is from three-fourths of a ton to 2 tons per acre, according to the state of cultivation and the season. The grass is cut with small scythes, and very close. When dried, it is tied up in bundles of about 100 pounds each, which are hung one on each side of a pony's back and thus carried to the barn or the hay-rick. When the ingathering of the hay of the home-field is finished, the people have a sort of festival, corresponding to the harvest-home of Britain, which, however, consists only in eating and drinking and no other merry-making. The out-field usually receives no kind of cultivation. In some parts, however, it is partly irrigated. The hay gathering in these differs in no way from that of the home-field, but the crop is usually much inferior. The hay harvest lasts usually from the middle of July to the middle of September, or two months. During this time the whole of the country population is engaged in hay-making, and also many of those who during other parts of the year are engaged in fishing, as the life of the whole population may be said to depend upon the hay crop. When that fails, the live-stock—sheep, cows, and horses—have to be cut down and starvation follows. There is no doubt that the cultivation of the home-field might be improved and extended, and this gives the best security against the failure of the hay crop, and, consequently, the well-being of the whole farming population. Well-cultivated home-fields never fail entirely, and very seldom fall below an average yield, even in bad seasons. There is no natural obstacle to the extension of those fields, as the soil around is often quite as favorable for cultivation as that of the home-field itself.

In most parts of the island there are kitchen-gardens, where potatoes and turnips are cultivated with success, but only for the use of the people themselves. These might also be extended considerably, although potatoes often fail during bad seasons, especially in the north of the island.

The influenza reached even to this remote quarter of the globe during the month of June, and, this being the busiest traveling season, it spread to all parts of the island, and its track could be traced everywhere through communication. It was not, however, of a very virulent type and very few people died from it. It caused, however, great inconvenience and loss of work, coming, as it did, at a very busy season, and in some cases all the people of a house were laid up at the same time.

There have been very few tourists this summer, and none at all in the north of Iceland, which, however, by many is considered a more pleasant part for a summer holiday than the south. This may, in some measure, be due to the absence of roads, difficulties of traveling, and want of accommodation for travelers. Until a couple of years ago there were only bridle-paths to be found in the island and no proper roads. The first road ever made here was begun about two years ago, and it does not yet go further than a few miles out of Reykjavik; but it is intended to go on with it as far and as fast as the funds of the country permit. This is, however, likely to be a slow process unless a loan were raised for this purpose. The first of our large rivers is now in course of being bridged. In any case many generations will come and go before there will be roads, even through the most frequented parts, and the most dangerous and most difficult rivers will be bridged. Since, however, the beginning has once been made, we may reasonably hope that it will be carried on with increasing energy, as the result of what is done can not fail to convince people of the use of them for the prosperity of the country.

The sheep fairs have just begun, and, as far as is known, they have been favorable for the sellers. Two-year-old wethers have been sold at from 19*s.* to 20*s.* and one-winter-old ones at from 12*s.* to 13*s.* The sheep trade with Scotland and England has been a great convenience for the Icelanders, as this trade, as well as that of the ponies, has been carried on on the ready-money principle, the rest of the trade being altogether barter or exchange of goods. If it were not for the sheep trade, the people would have a great difficulty in finding money to pay rents and taxes. The only objection that might be raised against this trade is that, when prices are comparatively high, the farmers might be tempted to part with more sheep than is good for them and have to live upon fish and imported corn instead of mutton. On the whole, however, we are glad that Scotchmen are beginning to have a taste for our mutton; and we do not wonder at it, for we think it is really good. This trade has also had the effect that the people are far more careful in the breeding and treatment of the sheep than formerly, and their quality has therefore considerably improved.

Last winter and spring the fishing was not at all successful, but during the summer it has been extremely good, especially in the northeast.

WALLACE BRUCE,
Consul.

UNITED STATES CONSULATE,
Leith, November 14, 1890.

AGRICULTURAL AND SUGAR BOUNTIES IN BRAZIL.

REPORT BY CONSUL BURKE, OF BAHIA.

SUGAR PREMIUMS.

In November, 1889, I had the honor to transmit the substance of a decree by the Government—then under the Empire—relative to the establishing of new sugar-mills throughout the sugar-growing districts of Brazil, with a view to encouraging the sugar industry of the country.

I have now to say that all the dispositions contained in the decree referred to above are revoked by another decree on the same subject, promulgated by the Provisional Government on the 4th instant. This decree, after setting forth the benefit that will arise to the country in general and to sugar planters in particular, and to the different states in which they may be located, in the proper and assiduous cultivation of the sugar-cane, offers premiums to those factories which, with the least cost of manufacturing it, will obtain the greatest percentage of sugar by the diffusion process.

Three classes of premiums are offered under the terms of this decree—the first, of 50,000 milreis, to the sugar factory that will obtain, with the least expense in manufacturing, at least 12 per cent., without distinction of quality; the second, of 30,000 milreis, to the factory that, under the same conditions as the first, will obtain at least 11 per cent. of sugar; the third, premium of 15,000 milreis, under the same conditions as the two first, that will obtain at least 10 per cent. of sugar. These premiums will be distributed annually upon information of, and inspection by, the commission appointed by the Government. This commission will receive instructions from the minister of agriculture, commerce, and public works. The commission will consist of three members, all of whom must be thoroughly conversant, in theory and practice, with the method of raising cane, and who shall frequently examine all the factories, note the cost of production, and suggest the best basis on which to proceed in the greatest development of the industry.

In a recent issue of the Journal de Noticias, of this city, the *engenhos centraes*, or central sugar factories, of the different states where sugar growing is an industry, with the capital guarantied by the Government, are given as follows:

States.	Number of factories.	Capital.
		*Milreis.**
Pernambuco	21	15,950,000
Bahia	11	7,700,000
Rio de Janeiro	9	7,500,000
Alagoas	8	6,000,000
San Paulo	7	4,300,000
Senripe	6	4,150,000
Maranhão	4	3,000,000
Paryhyba	4	2,950,000
Rio Grande do Norte	3	1,650,000
Espirito Santo	3	2,200,000
Minas-Geraes	2	1,500,000
Santa Catharina	1	750,000
Districto Federal	1	750,000

*1 milreis = 54.6 cents.

From the above it will be seen that there are 80 factories, with a capital of 58,650,000 milreis. Of those in the state of Bahia, I am informed from other sources that there are but four large factories and five small ones, the large ones having a capital of £70,000 to £75,000 each, on which 6 per cent. interest is guarantied by the General Government. So far, however, none of the Bahia factories employ the diffusion process in manufacturing. Though a larger quantity of sugar from an equal amount of cane may be obtained by this process, the expense in the manufacture is said to be greater on account of the greater expense of fuel.

I have endeavored to obtain an approximation of the number of acres of cane under cultivation in this state, but I found the effort a fruitless one. A general idea of the number of acres might be given, if the number of tons exported in any year were known. A fair crop will yield 35 tons of cane, or thereabouts, to the acre, and from this may be manufactured, under the old process, some 2½ to 3 tons of sugar; under the diffusion, much more. Were the land properly cared for, tilled, and cultivated, a much larger crop might be produced. But in general it is with cane raising as with other products of the country: nature remains in a great measure unassisted, and the cane grows, if conditions are favorable; if not, sugar is imported, as was the case last year, when the state did not raise enough for home consumption.

The cost of the cane to the factories varies according to the condition of the crop as to quality and quantity. The present price per ton is from 5 to 7 milries. To the large factories the terms of the concession are that 12,000 tons at least shall be manufactured annually.

AGRICULTURAL BOUNTIES.

Another decree of the Provisional Government, dated October 11, relates to premiums offered by the Government for promoting and developing the agricultural interests of the country. This important decree provides that, under a commission appointed by the Government, premiums varying in value from 50 to 10,000 milreis shall be given, under certain conditions, to farmers engaged in different branches of agriculture: in cattle and sheep and hog raising, also goats and horses; in producing the best quality of coffee, sugar, cocoa, grain, vegetables, cotton, wax, oil, rubber—in fact, any article of produce that can be grown in the country. Under the terms of the decree there must be annually an agricultural exhibit in each state of all the products grown in that state, when the premiums offered will be awarded to those who are entitled to them. It is practically nothing more or less than a state fair supported by inducements held out by the General Government.

There is being organized in Rio de Janeiro, according to newspaper reports, a company to build and run a line of steam and sailing ships between Brazil and the United States, the steamers to make two trips a month, and both steam and sail to carry the Brazilian flag. The company is called Companhia Americana de Navegacão.

A company has also been organized to run two steamers and five launches on the river San Francisco, the most important branch of the Amazon. The company is called Companhia de Viaço Central do Brazil. The steamers are small, being but 100 feet in length, but are just suited to plying up and down the river, capable of carrying 40 tons of cargo and have accommodations for sixteen first-class and twenty second-class passengers. It will be a great convenience for the people living along the margin of the river, and, no doubt, will aid in developing that part of this state.

Although it is stated that the tariff is being revised, the new tariff schedule to go into effect on November 15, the same time at which it is decreed that all duties shall be paid in gold, yet very recently I noticed the following changes in the municipal imports of this city: One milreis additional on every volume of alcohol, 200 reis additional on every box or parcel containing inflammable material, 100 reis additional on each gross (in boxes) of matches, and 200 reis additional on each case of kerosene. The duty on kerosene before the increase was about 3½ milreis per case. Of course, this additional rate is levied by the municipal government, and under the revised tariff may be dropped.

DAVID N. BURKE,
Consul.

UNITED STATES CONSULATE,
Bahia, October 3, 1890.

Tobacco in Egypt.—Acting Consul-General Grant, of Cairo, under date of December 2, 1890, makes the following corrections in his report on "Tobacco in Egypt," published in No. 121, for October: Third line of report, page 289, "17 piasters" should read "14 piasters;" the fourth sentence on page 290, ending "22 to 27 per cent. per annum," should read "22 to 24 per cent."; the first line of figures in second table on page 292 under 1884, "$1,041,830.11," should read "$1,141,820.11."

RAILWAYS AND TELEGRAPHS IN THE AMAZON VALLEY.

REPORT BY CONSUL KERBEY, OF PARA.

RAILWAYS.

Bragança Railway.—This is the first and only steam railway in existence and operation in the Amazon valley. It has been mentioned briefly in previous annual reports from this consulate. In its present and past history it is principally interesting as an exotic which is being forced to live and grow under most unfavorable circumstances in a land that seems more especially and almost exclusively restricted to water transportation. But it would be unfair to judge of the ultimate success of the railroads in the Amazon valley by the poor financial showing of the Bragança Railway, for the reason that it is as yet nowhere near completed, and the part already constructed is being run rather for the purpose of developing agricultural and other enterprise along its route than to meet any great demand already existing for railway communication by the territory already reached.

The final purpose of the Bragança Railway is to reach Bragança, 202 kilometers to the east of Para on the sea-coast, and without any mentionable harbor, but abounding in agricultural products, and there join a projected railroad to run from Bragança to Maranham—the two roads to form part of a continuous coast line from Para to Rio de Janeiro at some future day. If that project is carried out, then the financial success of the Bragança Railway will no longer be problematical.

Up to this date, during the five years that have elapsed since the road began to operate, the running expenses have been more than double the amount of the receipts of the road. For the year 1886 the current expenses were about two and one-half times the amount of the receipts. Since the railway was bought by the state, in May, 1887, the deficit is drawn from the state treasury.

At present the railway has 68 kilometers in operation. There are eight trains each way per week, four of which are run by a time-table, and which are generally composed of one first-class passenger-car, one second-class passenger-car, and a car for baggage and express matter. These four trains leave Belem (Para) at 4 o'clock in the afternoon on Tuesday, Thursday, Saturday, and Sunday, returning the following morning in each case. Besides these four trains, there is an excursion train leaving Belem at 6.30 a. m. on Sunday, and three freight-trains during the week leaving Belem at 6.30 a. m. on Monday, Wednesday, and Friday.

The freight consists mainly of building stone, sand, lumber, timber, and fire-wood. There are five locomotives in existence on the road, three of them English and two American (Baldwin). Two more American locomotives have just been ordered and are to be delivered here by December next. The rails used are all English. For the extension of the road now building

300 tons of rails have just been bought in England and are soon expected to arrive here. The road is being slowly extended toward Bragança, the help employed being largely refugees from the recent drought and famine in Ceará. In this way 7 kilometers have been built this year and 15 more are now being surveyed.

In reply to the question, "what amount of rolling stock additional will be necessary to equip the road when the projected extension is ready for traffic?" the superintendent and chief engineer, Theodosio Calandrini Chermont, states that "there will be needed ten first-class passenger-cars, ten second-class passenger-cars, and forty freight-cars." These, of course, must all come from abroad. As Bragança, the terminus of the route, is 202 kilometers from Para, there still remain 134 kilometers to be built, and for which the rails are still nearly all to be bought.

Alcobaça Railway (*projected*).—Both as being a promising field for enterprise and as being just on the point of slipping from the finger ends of an American company who have had it in full grasp, the Alcabaça Railway is of special interest just at present.

The state of Goyaz, which forms a part of this consular district, is an interior region, having no way of communication with the sea-board better than a long mule route overland to Maranham, or a dangerous one month's journey in canoes down the river Tocantins, or six months on the return trip. But the state is cut by the upper river Tocantins in different directions, which river, with its tributaries, furnishes more than 1,000 miles of clear and uninterrupted water for steam navigation above the rapids in a healthy, fertile, and somewhat populated upland region of country. There are large stretches of excellent grazing lands abounding in cattle, forests rich in medicinal and other valuable products, as well as excellent woods and mines of different sorts, especially of gold, which for more than a century have been known to be immensely productive, but abandoned for various reasons, good enough for the tropics, but unsatisfactory to Anglo-Saxon energy. A railroad around the rapids of the Tocantins River is the key to the immense and almost untouched wealth of Goyaz.

The history of American enterprise in connection with this projected railway is, briefly, as follows:

By imperial decree No. 9680, of November 20, 1886, a Brazilian citizen, João José Correa de Moraes, obtained the privilege of navigating the rivers Tocantins and Araguaya (the latter being a tributary of the Tocantins above the rapids) and the construction and use of a railway from the head of navigation of the lower Tocantins at Alcobaça to Santo Anastacio, above the rapids on the same river, where uninterrupted navigation begins again, a distance of 102.8 kilometers.[*]

On December 13 of the same year (1886) the provincial assembly of Para passed a law authorizing a contract with the same João José Correa de Moraes for the construction of the railroad and the establishing of the steam navigation and the railway traffic, as contemplated in the imperial concession. On the 22d of June, 1887, the contract was signed by the provincial authorities and the representative of the said Moraes. This provincial contract stipulated the length of time of the privilege of the railway to be thirty years, after which it was to revert to the province of Para, and for twenty years the province of Para agreed to guaranty the interest on the capital employed in the construction and equipment of said railway at the rate of 7 per cent. per annum, the said capital not to exceed 26,000 milreis per kilometer. The contract also guarantied the proper construction and management of the railway and regulated the steam navigation.

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[*] A late dispatch from Consul Kerbey says that the concession to Mr. de Moraes, and by him transferred to the Para Transportation and Trading Company, was decreed forfeited on December 10, 1890

By the imperial decree No. 9950, May 9, 1888, the Para Transportation and Trading Company was recognized and authorized to do business in Brazil, and not long afterward both the imperial concession and the provincial contract were transferred from Joao José Correa de Moraes to the above-mentioned company.

This Para Transportation and Trading Company was chartered by the State of Wisconsin, having its head-quarters (nominally) at Madison, Wis.; but the capital represented or employed is said to have been largely from New York and Canada. Their principal representative in Brazil was George Armstrong, esq.

On the 7th of December, 1887, the provincial assembly had voted to extend the time of the privilege of the Alcobaça Railway from thirty to ninety years by a two-thirds majority, against the veto of the president of the province and without any formal request having been made by the company for the extention of the time of the privilege. On the 17th of October, 1888, the president of the province ordered that the extension of time for the privilege should be indorsed on the provincial contract, which was accordingly done. Previous to this indorsement, however (April 9, 1888), a bill had been presented in the provincial assembly to repeal the laws which had authorized the extention of the time of the provincial contract (laws I, 314 A; I, 314 B; I, 314 C, of December 7, 1887). The bill to repeal passed, but was sent back to the assembly, unsanctioned by the president of the province, on March 7. A committee was appointed in the assembly to take into consideration the president's reasons for refusing his sanction, and expected to report speedily. They never reported. Consequently, the repeal was not effected. It was, therefore, while the legislation was in this state that Mr. Armstrong obtained the indorsement on the contract of the extension of time to ninety years.

On April 23, 1889, Mr. William A. Ramsey, civil engineer, representative of the company and having power of attorney for the same, presented to the provincial government the results of the survey and the estimates for the road. These papers having been reviewed by the government engineers and perfected by Mr. Ramsey, the plan of survey and estimates were accepted by the provincial government, and an officer appointed to oversee the fulfillment of the contract on June 6, 1889.

The total price for the construction and equipment of the railway upon which interest should be granted was fixed at 3,025,928 milreis in the accepted estimates. Later (August 16, 1889), in view of certain errors in the figures previously submitted and accepted, but which errors had been overlooked, the council of public works declared to the president of the province that the total capital on which interest should be guarantied for the 102.8 kilometers should be 3,002,168 milreis.

When the provincial assembly met on September 18, 1889, Dr. Antonio José Ferreira Braga was president of the province. His message at the opening of the assembly in very severe terms censured the contract and the legislation connected with it as being very unfavorable to the interests of the province, and as the result of bad faith somewhere. This same assembly passed a bill (September 28, 1889) to the following effect:

> The laws Nos. I, 314 A; I, 314 B; I 314 C, of December 7, 1887, are repealed, and the president of the province is authorized to annul the contract made at the provincial treasury by virtue of those laws.

This law, No. I, 390, was sanctioned by the president October 4, 1889; but up to the present date (October 20, 1890) the president of the province (now the governor of the state, according to the nomenclature of the Republic) has not availed himself of the said authorization to annul the contracts.

The Para Transportation and Trading Company sent a protest to the government of the state of Para against the actual and future effects of such legislation on the interests and injured credit of the company, and claim that, in view of such injury and loss, the company should not be considered as violating their contract by the resultant delay in the execution of their project, and claiming, besides, indemnity for said injury and loss.

The government of the state of Para makes no accusation against the company for violation of the conditions of the contract, but simply pleads that the conditions of the contract were exorbitantly against the interests of the state of Para. And so they would seem to be. Besides the general contract, there was a subsidiary contract for the introduction of immigrants, which gave the company first choice and preference in the purchase of immense tracts of public lands at a nominal price, and other very valuable concessions. These broad concessions, in view of the well-known rich natural resources of the state of Goyaz, have tempted and induced this action toward the company.

The government of the state of Para confesses to have no proof as yet that the company has abandoned the enterprise, and the time limit for beginning the construction does not expire until next June. For months, however, the Para Transportation and Trading Company has ceased to pay the salary due from the company to the government official appointed to oversee the fulfillment of the contract; but the company has also never refused to pay. The failure to pay this salary is taken as a partial indication that the company may have abandoned the enterprise. Whether the Federal Government of Brazil has received certain information on the subject is also unknown here in Para. But on the 8th instant a telegram was published in the Para daily papers, of which the following is a translation:

> *Rio*, 7.—The Government has just decreed the construction of the railway called Alcobaço between the states of Goyaz and Para.

The terms of the above-mentioned decree of the Federal Government are not yet known in Para; but it is hardly to be supposed that the Brazilian Government would take this step without a formal renunciation of the enterprise by the Para Transportation and Trading Company.*

Madeira and Mamore Railway.—In the general report from this consulate for 1884 occurs the following paragraph concerning this unfortunate enterprise:

> * * * The road was projected about fifteen years ago (1869), and a concession for building it given to the Bolivian Steam Navigation Company. The first contractors for the building of the road were the Public Works Construction Company, formed with English capital mostly. The Brazilian Government had guarantied the interest of $2,000,000 for the construction of the road. The work of building the road was finally undertaken by P. & T. Collins, of Philadelphia. The construction commenced in March, 1878. Five miles of track were laid and every thing promised a speedy completion, when an injunction was put on the funds in England by the bondholders who pretended to doubt the success of the enterprise, and after long litigation they obtained the money and left the men who had done the work with nothing.
>
> In 1882 the Brazilian Government appointed a corps of engineers to make a survey of the route. The survey was completed about a month since, and the corps has returned to Rio de Janeiro to submit the results of the survey to the Government. The length of the railroad is to be 416 kilometers. When the road is completed, the Madeira River, which now furnishes a quarter of the export products of this province, will be the route of communication with the world for the fertile plains of cisandine Bolivia, with its 2,000,000 inhabitants and its rich mines of gold, silver, copper, tin, lead, and mercury.

That was the outlook for the enterprise in 1884, when the corps of engineers returned to Rio de Janeiro to report the great survey they had made, and quarrel about it and pigeon-hole it so deep that nothing has been heard of it or done about it since.

The locomotives and track and huge piles of rails still lie there in the forest where they were abandoned more than ten years ago, except that, as I have recently communicated to the Department, the governor of the state of Amazonas has communicated to this consulate his purpose to avail himself of some of those rails (2 kilometers) for urgent use in Manáos.

TELEGRAPHS.

The Western and Brazilian Telegraph Company (limited).—This cable company owns and operates a cable extending from Para, which is its northern terminus, to Montevideo, the southern end of the line. The intervening stations are Maranham, Ceará, Pernambuco, Bahia, Rio de Janeiro, Santos, Santa Catharina, Rio Grande do Sul, and Maldonado.

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* In a supplementary report Consul Kerbey sends the following translation of a telegram from Rio de Janeiro to the Provincia do Para newspaper:

"RIO DE JANEIRO, *October 19, 1890*.

"The Government has just ratified the concession of the Alcobaça Railway to the civil engineer Joaquin P. de Moraes Jardin, as also the line of navigation of the Tocantins from Belem to the terminus of the same railway, which shall be Patos, in the state of Para. In the state of Copaz the point of departure will be at Praia da Painha. The line of navigation may be extended to all the navigable portions of the Araguay River and its tributaries."

Foreign telegrams sent by them are transferred to the Brazilian Submarine Cable Company at Pernambuco, which, touching at St. Vincent and Madeira, hand them over to the Eastern Company at Carcavellas, Portugal.

The head-quarters of the Western and Brazilian Telegraph Company is 19 Great Winchester street, London, E. C. The name of the general manager is Maj. A. Wood.

Brazilian land line.—The present northernmost station of this Brazilian national telegraph is Para. It reaches the capitals of all the states of Brazil. except Manáos, the capital of the state of Amazonas, 1,000 miles up the Amazon River. The total number of stations of this line is one hundred and nineteen. Six more are soon to be added. Salinas, the pilot station at the mouth of the Amazon, is to be put in communication with the line very shortly, which will be a great advantage for shipping entering the river, thus being able to announce their coming eight or ten hours before arriving at Para.

The necessity of a telegraph line to Manáos has been increasing with the growth of Amazon trade. As Manáos has become a port of shipment direct to New York and Europe, it has become of prime necessity to know the daily price of rubber in foreign markets, and also to have banking houses, both of which are impossible without telegraphic communication. The Provisional Government has resolved to attempt to supply this urgent need, and has appropriated 100,000 milreis for a survey of the route. This task is no small one. It really seems to be a choice among impossibilities. For the first 500 miles a land line is impossible, and the upper 500 miles is unattempted and almost impenetrable forest. The choice seems to be a river cable; but the question is, where will the cable be next year, when there are islands where this year there are 15 fathoms of water, and *vice versa?* They have put an energetic man at the head of the survey expedition, Mr. Alexandre Haag, who will succeed, if success is possible. If the project is executed, Macapá, Cametá, Santarem, Itacoatiara, and Manáos will be added to the list of telegraph stations, which will mark a red-letter day in the development of the Amazon valley and revolutionize the rubber-buying business, transferring a considerable part to other points, and especially to Manáos.

Dom Pedro II Cable Company.—It is impossible here to get any reliable information concerning this projected and long-delayed line, which is to connect Brazil directly with the United States. It is said that one of the stipulations in the charter granted to this company is that it shall not combine with other transatlantic lines to keep prices up. Whether true or not, it is a well-known fact to myself, as a former telegraph manager, that about fifty men control all the telegraphs in the world, and among these fifty must be found the reason why the direct cable from the United States to Brazil has not yet been laid.

TELEPHONES.

In the city of Para there is a well-organized and well-managed telephone service. The concessionaries are Chermont & Ca., and the manager is the civil engineer Antonio Leite Chermont.

The imperial concession was first granted April 21, 1883, to Mr. Carlos Monteiro e Souza; by him it was passed over to Chermont & Ca., which transfer was sanctioned by imperial decree of May 30, 1888.

At the time of the transfer the capital was 100,000 milreis, but it has since been raised to 400,000 milreis. The present number of exchanges connected with the central station is four hundred and six.

The switch-boards are American and German. Receivers and transmitters are American, Bell-Blake. The lines are partly of silicon bronze and partly of galvanized iron, the former mostly from Germany and Belgium and the latter from America and England.

The only other telephone enterprise in the Amazon valley is at Manáos. There are about eighty exchanges connected with the central station at that place. The equipment is mostly American material, furnished through the Para Telephone Company. The concessionary of the Manáos plant is J. Caribé.

ELECTRIC LIGHTING.

There ought to be a good future for an electric lighting plant in Para. At present electric lighting is represented in Para only by a small Thomson-Houston dynamo of 8,000 candle power, with three arc lights and corresponding appurtenances. The little plant is used only on special occasions, for festivals, concerts, etc.

At present the Government has no project on foot in this regard. The contract of the gas company expires May 13, 1894, and better illumination of the city is most urgently called for. The telephone company here seems alone to have manifested any inclination to take hold of electric lighting in Para.

JOSEPH O. KERBEY,
Consul.

UNITED STATES CONSULATE,
Para, October 20, 1890.

CURRENCY AND FINANCES OF COSTA RICA.

REPORT BY CONSUL MACKEY, OF SAN JOSÉ.

GOLD AS KNOWN TO THE ABORIGINES.

The aborigines of Costa Rica never approximated the civilization attained by the Aztecs of Mexico, but were not without some degree of advancement, as is evidenced by their knowledge and use of gold. This was the region of Central America where the hardy and valiant, but grasping and cruel, discoverers first encountered the prime object of their explorations.

It is extremely improbable that the use of gold as a medium of exchange or measure of value was known to the simple tribes who peopled these countries; the precious metal was pleasing to the eye of the savage on account of its color and luster, and was modeled by them into rude images of bird, man, and beast, which were worn as ornaments. Many of these images, exhumed from ancient Indian graves, are still extant, and betray no small degree of skill.

GOLD, SILVER, AND COPPER CURRENCY.

Costa Rica inherited her first currency from her Spanish invaders. This was the *macuquina* (called here more generally *cortadillo*), or cut coinage, which consisted of small pieces of copper, silver, and gold of irregular form stamped on one side with the arms of Spain and on the other with a cross. The *cortadillo* now exists only in the collections of the curious.

The first law establishing a national currency for Costa Rica after the expulsion of the Spaniards was that of 1823, which decreed the coinage of gold of the following denominations and values: The onza, $16; the half-onza, $8; the quarter-onza, $4. The silver coinage was decreed to consist of the dollar, or peso, of the value of 8 reals.

The style prescribed by the above act was, on one side, a star surrounded with the inscription "Costa Rica Libre, 1821;" on the other, a palm crossed by a sword, a gun with bayonet fixed, and a cannon below. Underneath, on the rim of the coin, was its value, legal standard, and name of the assayer.

No issue was made under this act, but later the currency of the denominations referred to was adopted, bearing on one side the arms of the Central American Federation, on the other a coffee-tree. The inscription on these coins was "Estado Libre de Costo Rico, America Central."

By the decree of December 1, 1841, the value of the onza was raised to $18; in 1842 it was reduced to $16, and in 1843 raised to $17, which legal value it retains.

The onza was divided into half-onzas, quarter-onzas, escudos (one-eighth of an onza), and half-escudos (one-sixteenth of an onza).

The silver coinage was the dollar, or peso, 4 reals, 2 reals, medios, and cuartillos.

By the decree of 1848 the currency of Costa Rica was established in the following form: The obverse of the gold coins displayed the arms of the country, the date of coinage, and the words "Republica de Costa Rica;" the reverse was stamped with the figure of an Indian girl armed with bow and arrows, the left arm resting on a pedestal; on the rim of the coin is inscribed the date of the independence (15th of September, 1821) and the words "America Central." The silver coins differed from the gold only in that on the reverse was stamped a coffee-tree.

The coins issued since 1864 do not contain the Indian figure, and their value is that of the decimal system, viz, $10, $5, $2, and $1 gold, and in silver pieces of 50 cents, 25 cents, 10 cents, and 5 cents. Copper coins of the value of 1 cent and one-fourth of a cent were coined.

In 1848 the first constitutional President, Dr. José Maria Castro, distributed (by causing them to be thrown broadcast among the populace assembled on the plaza) an issue of reals (12½ cents), coined for that purpose, in celebration of the adoption of the constitution.

The table here given sets forth the amount of coined money issued in Costa Rica from 1829 to 1886:

Denomination.	Date.	Amount.
Gold.		
Onzas	1829 to 1844	$188,634.00
Medias (one-half) onzas	1829 to 1858	283,976.00
Cuartas (one-fourth) onzas	1829 to 1863	514,829.25
Escudos (one-eighth) onzas	1829 to 1857	146,862.00
Medias escudos (one-sixteenth) onzas	1832 to 1864	94,452.12½
$10 pieces	1870 to 1876	580,790.00
$5 pieces	1867 to 1876	385,490.00
$5½ pieces	1874	37,427.50
$2 pieces	1866 to 1876	30,432.00
Dollars	1864 to 1872	88,915.00
Total		2,351,807.87½
Silver.		
Dollars	1832 to 1844	2,176.00
50-cent pieces	1865 to 1886	383,713.00
2-real pieces	1849 to 1856	15,636.75
25-cent pieces	1864 to 1886	121,401.75
Reals	1832 to 1856	48,906.25
Half-reals	1841 to 1862	15,184.93¾
Cuartillos	1845	443.18¾
10-cent pieces	1865 to 1886	64,752.40
5-cent pieces	do	38,369.70
Total		690,583.97
Copper.		
Cents Quarter-cents	1866 to 1874	1,681.91½
Grand total		3,044,073.76

Since the year 1876 no gold has been coined, and from 1886 to 1890 there has been no coinage of silver. During the present year Costa Rica contracted to have coined in England the following sums of silver:

50-cent pieces	$103,824
25-cent pieces	101,130
10-cent pieces	26,000
5-cent pieces	27,056

On account of an error in the weight of these coins the Government has ordered their recoinage in the national mint.

There is no gold now in circulation in Costa Rica. By far the greater part of all coined has been exported, and the remainder is either in the coffers of the banks, from whence it does not emerge, or in the possession of the rural population, who zealously hide it from the light of day. The amount held by the banks is estimated at $400,000. No silver dollars are now in circulation or, perhaps, in existence. The amount of silver coin in circulation is said to be $2,142,326. The silver fractional currency now in use is of a standard so base as to be useless as a medium of international commerce. The copper coins have almost entirely disappeared from circulation. I have never encountered those of quarter-cent, and the 1-cent pieces I have seen in use only at the post-offices for making change in the purchase of stamps.

Costa Rican gold is at a premium of 25 per cent. over the silver and paper currency of the country. The value of foreign currency with relation to the currency of the country is established by law at the following rates: English pounds, 9 per cent. premium; Spanish gold, 9 per cent. premium; French gold, 8¾ per cent. premium; Colombian, Peruvian, Mexican, and Guatemalan gold, 8½ per cent. premium; United States gold, 12½ per cent. premium.

In practice the above law is a dead letter, for English gold commands a premium of from 35 to 50 per cent., and American gold from 45 to 60 per cent., on the national currency. Mexican and Peruvian silver dollars are always at a premium of from 15 to 30 per cent. Foreign exchange fluctuates within the limits above mentioned, being usually at the highest point in August and September, and the lowest in December and January, of each year.

PAPER CURRENCY.

Official statistics show the amount of paper currency in circulation to be $2,809,491, of which sum $857,483 are treasury notes and $1,952,008 are notes of the Banco de la Union. No emission of paper money was made by the Government of Costa Rica until the administration of Don Jesus Jimenez, who was elected President of the Republic in 1863. The amount of treasury notes emitted under the administration of President Jimenez did not exceed $200,000. Later, various administrations have issued about $1,900,000 in paper currency.

In 1884 the Government deprived itself of the right to issue paper currency for the period of ten years, granting that privilege solely and exclusively to the Banco de la Union, and authorizing the said bank to issue notes to the value of four times its capital. The bank is organized with a capital of $1,000,000, and is therefore permitted to emit $4,000,000 in notes.

The profits of this institution, in consequence of this extraordinary privilege, have been enormous, its stock paying a dividend of more than 20 per cent. per annum. The notes in circulation are of the denomination of $100, $50, $25, $10, $5, $2, and $1, respectively, and circulate at par with the national silver currency in every part of the Republic.

FOREIGN AND INTERIOR DEBT.

No country enjoys more wide-spread and general prosperity than this diminutive Republic. Possessing a fertile soil adapted to the production of the most valuable articles of commerce, an ideal climate in many parts of its territory, a law-abiding and contented people, and exempted from the frequent ravages of internecine wars, which have cursed and retarded so many of the Spanish American republics, Costa Rica has steadily advanced in wealth and civilization.

The foregoing statement is mathematically demonstrated by the following table of receipts and outlays from 1824 to 1889:

Years.	Receipts.	Expenditures.
1824	$14,751.00	$14,243.00
1840	117,164.00	67,992.00
1879–'80	2,525,726.12	3,158,823.72
1886–'87	2,883,752.03	2,772,315.07
1887–'88	3,582,815.87	3,305,547.57
1888–'89	4,151,584.64	3,939,997.75

The foreign debt of Costa Rica was contracted in 1871 and 1872 by loans effected in England to construct railways from the Atlantic to the Pacific. In 1885 this debt attained the sum of $26,218,425.40, of which amount Costa Rica actually received the magnificent proportion of $4,877,865.56, and, in consequence, instituted suit in London against the bankers who negotiated the loan. The Government expended half a million of money in this suit without beneficial results.

In 1885 Mr. Minor C. Keith, an intelligent and energetic American, effected an arrangement by which this debt was reduced to £2,000,000, on which the Government pays an interest of 5 per cent. since the year 1888. Payment of the foreign debt is to begin in 1897, and both interest and principal are guarantied by the customs revenues. Costa Rican bonds are quoted in London at 90 and 92 per cent.

The interior debt, according to the report of the ministro de hacienda for 1890, is $2,712,397.82, which sum includes the treasury notes ($857,483) still in circulation.

The public debt has been diminished by nearly $6,000,000 during the last four years, and there is no doubt that under the present honest and economical administration of the government it will be greatly reduced.

SOURCES OF REVENUE.

Costa Rica derives her revenue from duties on importations, from the tobacco and liquor monopolies, the sale of public lands, a tax on animals slaughtered for the market, licenses for the sale of foreign liquors, the registration of properties and mortgages, stamps, and the products of a few miles of railway and quite an extensive telegraph system. The owners of real estate in the towns are taxed for maintaining the municipal police, for the water supply, and for street lighting. All persons in the Republic over twenty years of age are obliged to pay $1 per annum for maintenance and improvement of the public roads. The customs duties on importations produce the largest revenue to the State, and the income from this source is characterized by a steady and continued increase every succeeding year.

The late secretary of the treasury, Don Ricardo Jimenez, in his report to Congress for the year 1890, remarks, with pardonable pride, that one of the chief obstacles encountered by Mr. Keith in his mission to England for the purpose of adjusting the foreign debt was the difficulty of convincing the creditors that the revenue derived from import duties in Costa Rica would attain the annual sum of £100,000; yet the duties collected at the custom-houses during the fiscal year 1889 were $1,807,100.98, and in one month of the same year were sufficient to pay 44 per cent. of the annual interest on this debt.

The following statement shows the annual increase of revenue from duties on imports:

1886	$807,801.44
1887	1,302,741.24
1888	1,707,584.92
1889	1,807,100.98

The Government reserves to itself the monopoly of the distilling and manufacturing of liquors and alcohol, and from this source derives a considerable revenue.

The returns from the liquor monopoly during the fiscal year 1889–'90 were $1,402,160.33, an increase of $265,306.89 over the preceding year. From the monopoly of tobacco the Government received in the same year $597,844.94, an increase of nearly $40,000 over the preceding year.

Revenues obtained from minor sources heretofore stated also exceeded the income for 1888–'89 by $444,713.88. The revenue derived from the sale of public lands is inconsiderable. The Government counts among its assets a third part of the stock of the Costa Rica Railway, which road, from Limon to the capital, will be completed in two or three months. The value of this stock is considered sufficiently great to discharge the interior debt of the country at a day's notice.

In conclusion, I may say the financial policy of Costa Rica is honest, economical, and benevolently paternal, for the State is ever ready to contribute to the support of charitable and educational institutions and many objects of public utility and advantage, which by other governments are relegated to the municipalities or to private individuals.

BECKFORD MACKEY,
Consul.

UNITED STATES CONSULATE,
San José, October 24, 1890.

THE LABOR STRIKE IN AUSTRALIA.

REPORT BY CONSUL GRIFFIN, OF SYDNEY.

The labor strike which began in the principal sea-port towns in Australia during the month of August was the most extensive and serious affair of the kind that has ever occurred in the colonies. Trade and commerce were well-nigh paralyzed, not only in the leading trade centers, but throughout the whole of the group.

The causes that led to the strike were trivial in the extreme, and were confined to only one branch of industry; but the ramifications of the strike were so varied and its powers so potent that almost every class of the community was affected by it.

In the early part of July a difficulty arose between the Tasmanian Steamship Navigation Company and the Federated Seamen's Union at Sydney in reference to the discharge of a fireman from the *Corinna*, one of the company's vessels. The matter was at once investigated by the seamen's union, and a formal demand was made for the re-instatement of the fireman. It was said that he was victimized by the chief steward, and was discharged solely because he was the delegate of the union. The president and acting secretary of the seamen's union addressed a letter to the captain of the *Corinna*, under date of the 8th of July, in which he said that he had been instructed by his society to say that they intended to have their delegate re-instated on board the *Corinna*, and, if not re-instated by the return of the ship to Sydney, the crew would be given the usual twenty-four hours' notice.

To this letter the managers of the company replied that the man was discharged because it was in the interest of the company to do so, and that there was no objection to his joining one of the other steamers belonging to the company, and that the captain did not even know that the man was a delegate. The union refused to accept the explanation, and the crew were called out. Other steam-ship companies felt aggrieved, and at a meeting of the owners it was determined to insist on their right to be the best judges of their own actions, and pledged themselves to employ both union and non-union labor.

About this time some dissension arose between the officers and owners as to the question of wages, the officers insisting that their pay was inadequate. They stated that they had tried repeatedly to have their pay increased, but every effort had resulted in failure, whilst the petty officers, sailors, firemen, and others who belonged to the union were more fortunate, as the union was always ready to champion them and to see that their demands were carried out; and the officers, despairing of getting justice in any other way, felt constrained to join the union. A majority of the steam-ship owners admitted the justice of their complaint, and were willing to grant higher wages, but would not agree to do so except on condition that the officers would enter into an obligation not to affiliate with any of the trades-unions or labor societies.

The officers peremptorily refused to comply with this condition, and shortly afterwards joined the Federated Seamen's Union. Public sympathy was at first with the officers; but, when the demands of the union became more and more importunate, the people began to question the propriety of these affiliated societies acting as censors in matters which they did not understand and which in no way concerned them as separate and distinct organizations.

The principle asserted, however, was that the various labor societies had a right to combine and champion the cause of any one of the affiliated bodies. The question was then asked, what on earth had the Miners' or Shearers' unions to do with the amount of wages that steam-ship owners should or should not pay their officers. It is said that a majority of the officers, very soon after joining the union, were very anxious to withdraw from it, and many of them did so. Indeed, it is claimed that they were not at any time on good terms with the union; that they wished to meet the owners and settle their difficulties. Steps were taken with that object in view in Melbourne and at a special meeting of the officers on the 17th instant in Sydney a resolution was introduced to withdraw from the union. This resolution occasioned a stormy discussion, and more than twenty officers withdrew from the association, and their course induced others to follow. The longer the strike continued the more unpopular it became. From the very first the strike was the absorbing topic of conversation. It was everywhere discussed by the press and people. A conference with the employers was earnestly demanded by the union for the settlement of the difficulties, but the employers would not accede to the demand.

One association after another was called out by the Trades and Labor Council, and the prompt manner in which the orders were obeyed, without even a question as to the reason or justice of the course, struck every one with amazement. The press was almost unanimous in denouncing the men for yielding so submissively to the union. The method of warfare adopted by the union was described as "vain, useless, inconsistent, and malicious." When the maritime laborers struck, it was because of a quarrel with the coast steam-ship companies; but in time all steam-ships, both foreign and intercolonial, became involved.

The next step of the union was to "boycott" any steamer wanting coal, no matter to what nationality it might belong; and then the miners at Bulli were ordered to strike, and threats were made to extend the order to other mines.

SILVER MINES.

A dispute next arose between the silver miners and their employers. The managers of the Broken Hill Proprietary Company, in the Barrier ranges, said to be the largest silver-mining company in the world, growing weary of the strained relations with the Trades and Labor Council, announced their decision to suspend operations. Much opposition was offered to this course; but, as no satisfactory arrangements could be made, the works were closed. Other companies followed, and in a short time more than eleven thousand miners were thrown out of work in the Broken Hill district alone. Great distress followed, and arbitration was resorted to, and, after weeks of tedious delay and discussion, an agreement was reached between the employers and the Amalgamated Miners' Association, by which the miners were allowed to resume work. The agreement set forth, among other things, that no question of any kind in connection with any other labor organization shall form the basis of a dispute; only questions affecting miners and the employers to be considered a matter on which arbitration shall be resorted to or trouble take place, the meaning of this being that, in the event of a trades council or any other body outside the Amalgamated Miners' Association, of the Barrier district, calling the latter out for disputes foreign to the miners or the men, they will refuse to come out, and will not raise such questions as between the miners and themselves.

PROPOSALS FOR A CONFERENCE.

Work was resumed in the Barrier ranges, and it was for a time thought that other associations would make similar terms with their employers; but no steps were taken in that direction, and the Trades and Labor Council still insisted on a conference. This being refused, a number of leading men in all the colonies took the side of the workmen. Cardinal Moran, the head of the Catholic church in Australia, described the action of the employers in refusing a conference as "unfair and unjust." Contributions for the strike fund were freely made. The chief-justice of Victoria contributed the sum of $243.32 to the fund, and in a letter transmitting the money said that "he would contribute in addition to the $243.32 the sum of $48.66 every week pending the time the employers withheld their consent to a conference for a settlement of the difficulties." A majority of the members of the bar of Victoria severely censured the action of the chief-justice, and after an exciting meeting it was resolved to contribute a like amount to the Employers' Association as long as the chief-justice should contribute to the strike fund. The chief-justice does not appear to have expressed, either in his letter or at any other time, an opinion as to the cause of the quarrel or as to which side was to blame, his purpose merely being to enter a protest against the employers for refusing a conference.

In the meantime a meeting of the employers was held in Sydney, at which delegates from all the colonies were present, and they concluded their deliberations by passing the following resolutions:

First. That this conference re-affirms the principle of "freedom of contract" between individual employers and employés, and asserts that any infringement of that principle is not only destructive to commerce, but is also inimical to the best interests of the working classes.

Second. That any attempt to apply force or the threat of force, or any persuasion other than that permitted and defined by law, to men who are not unionists, or any other form of "boycotting," should, in the opinion of this conference, be resisted by united action.

Third. This conference is of opinion that employers should declare that they will not be coerced in the dismissal of any labor that has taken service with them in the present emergency, and, in the event of any attempt being made to coerce such labor to join any trade organization or to interfere with them in the discharge of their daily work, the combined associations represented at this conference will take all possible means to insure their personal safety.

Fourth. That this conference declares that to maintain discipline, and thus protect life and property, owners of shipping in the coast and intercolonial trades should not engage or retain in their employ any captains or officers who may be members of a union affiliated with any labor organizations.

Fifth. That, with a view to the extension of the various employers' unions, it is desirable to encourage employers and others connected with all trades, businesses, and interests to join existing employers' unions and form other unions, where necessary for mutual protection and defense, upon the basis of resolutions passed; that such unions form federal councils for each colony; that all such federal councils be affiliated and confederated.

This conference desires a speedy termination of the present unsatisfactory state of affairs, and, to facilitate a resumption of work, employers are urged to proclaim, as soon as possible, the terms upon which engagements will be made.

A meeting was also held in Sydney composed of delegates from the various trades and labor societies throughout Australia, and the subjoined resolutions were passed:

(1) That this conference agrees with the principle of freedom of contract between employer and employé, but holds that combination is absolutely necessary in the best interests of the people, and that trades-unions, being legal institutions, are entitled to the recognition of all classes.

(2) The basis of unionism being voluntaryism, it is against their principles to use coercion of any kind, and they therefore use moral suasion only. They claim that every workman should have freedom to join any organization he may choose, and deny that employers have any right to use any influence other than moral suasion to prevent his doing so.

(3) This conference claims that it is absolutely necessary, in the interests of the working classes, that they shall have the right to refuse work, when the conditions under which they are asked to continue work are such as to be detrimental to their interests.

(4) This conference is heartily in accord with the general principles contained in the proposals of the employers' conference as set forth in their fifth resolution, and on similar grounds claim that the workers should have absolute freedom to affiliate their various organizations.

As considerable difference existed between the employers and the labor council, the latter felt that some explanation was required before either side could accept the principles involved. The labor delegates stated that they had been in session twenty days, and that they had exercised during all that time their best endeavors to bring about a settlement. They stated further that the employers' union have during the whole period evaded the question as much as possible by shuffling and delay, putting forth the excuse that they must wait the issue of negotiations going on in Melbourne, the employers' union in Melbourne acting on similar lines there by putting forth the plea that they must consult the employers' union in Sydney. No definite reply was given by the employers' union to the invitation from the Trades and Labor Council for a conference, and, consequently, the latter was compelled to adjourn the session.

Before doing so, however, the delegates of the labor council submitted the following:

We are of opinion that no settlement of a satisfactory character can be arrived at except at an intercolonial conference of both sides.

In the event of the employers being at any time prepared to meet us in any of the colonies, we recommend that the delegates be at once called together by the committee having control of strike matters in the colony the conference is proposed to be held in.

That no terms of settlement be accepted by any strike or defense committee in any colony without first consulting kindred committees in all the other colonies interested; also, that no single society accept terms of settlement without first consulting the committee having control of affairs in the colony in which such body is situated. The refusal of the employers to even meet and discuss matters can only be construed as an evidence that they prefer to let the strike continue in hopes that they may crush unionism; hence it becomes necessary to close up our ranks and loyally resist this unwarrantable attack on the rights of labor.

We recommend that each union and every friend of humanity be appealed to, so that full financial support may be secured. We suggest to each committee the desirability of directing their energies in the direction of a systematic collection of funds.

We would also call attention to the action of the government of each colony in regard to the strike, and recommend active, energetic work throughout all labor organizations in preparation for taking full advantage of the privileges of the franchise by sweeping monopolists and class representatives from the Parliament of the country, replacing them by men who will study the interests of the people, and who will remove the unjust laws now used against the workers and wealth producers and administer equitable enactments impartially.

We are pleased to be in a position to congratulate the unions on the splendid loyalty to the cause displayed throughout the strike. Every effort has been put forth by our opponents, assisted by their agents, the governments of at least three of the colonies, to provoke breaches of law and order. We are proud to say that everywhere their efforts have failed. The workers of the colonies have demonstrated their powers of self-government, and proved that it is the discipline of unionism, and not the power of armed force, which has guided their behavior under most trying circumstances.

We have every confidence that the loyalty and unity of our members will be maintained, and that in a short time victory will be on the side of humanity and progress.

The Employers' Association, however, strictly adhered to their determination not to meet the labor delegates, and gave the following reasons for doing so:

The contest in this case is solely on vital principles, upon which the attitude of both parties has been clearly defined, and, until some sign of wavering is given by either side, it would be useless to enter into a conference. The employers have been told that they are not dealing fairly with the public or the other side by interposing difficulties in the way of a conference, and have also been charged, by inference, with want of frankness and honesty; but upon what basis these statements are made it is difficult to understand. The employers have, from the time the question of conference was first broached, stated distinctly that nothing could be gained by going to a conference. They pointed out that they had been forced into a struggle for the right to manage their own affairs; that the terms upon which they had expressed themselves willing to conduct their business in the future were only such as were required to render their position as employers tolerable; and that so long as the principles for which they contended failed to meet with acknowledgment from the other side they had no alternative but to continue the struggle. There has been no temporizing on this point; there has been no attempt to mislead anybody as to the real sentiments of the employers on the question of conference; but it has been clearly set forth that to certain principles they were determined at all costs to adhere. The attitude assumed by them throughout has been a defensive one,

> and their very existence as employers depends upon firm adherence to the lines laid down in the minute of the employers' conference held in Sydney recently. There can be no departure from resolutions passed at the conference, and it would be dishonest and misleading to pretend that the employers are prepared to arrive at any compromise that may have the effect of wholly, or even partly, annulling the calm and deliberate decisions of the associated employers of Australasia.

The newspaper from which the foregoing statement of "reasons" is extracted continues:

> They have often explained the only conditions upon which a settlement could be obtained, and they have laid down distinctly the principles for the maintenance of which they are contending; and these principles have been almost unanimously declared to be right and just, while the attitude of the employers has been pronounced by the leading newspapers of the colonies moderate and fair. Now, what is the position? Some of the advocates of conference say it is unfair and insulting to press for the acceptance of principles which they have admitted to be right, and they suggest that an unconditional conference should be granted. The employers naturally meet this request by asking, "To what end?" and so far they have failed to elicit a satisfactory reply. As has been pointed out, the willingness of the employers to go into conference would imply their readiness to make concession; a conference, if it were to be any thing but abortive, can rest on no other basis than that of mutual concession. As they have stated over and over again, they are not prepared to make any concessions on the principles embodied in the Sydney conference resolutions, and, therefore, it would be useless to enter into any conference with a view of discussing points upon which they have a fixed determination to yield nothing. The employers would lay themselves far more open than they are at present to charges of want of candor, temporizing, and even dishonesty were they to enter into any conference without first distinctly declaring their position; and the public may rest assured that the employers will cheerfully bear all the undeserved reproaches now being heaped upon them rather than place themselves in the false position that the advocates of "unhampered conference" would land them in.
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> The employers have been further told that the conditions which they have sought to impose upon the Trader's Hall committee, namely, the acceptance of the principles laid down at the Sydney conference before they will consent to a meeting with the labor leaders, are most unfair and insulting; but on what grounds can such an assertion possibly be based? The employers have been forced into a fight. They have so far conducted that fight successfully, and they have made no attempt whatever to take any undue advantage of their undoubtedly strong position.
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> The employers are not unmindful of the public interest, as some advocates of conference would have it believed. In addition to being humane and reasonable, they also have knowledge gained by bitter experience and are eminently practical in the view they take of the present strike. They know full well that any departure from the well-defined principles embodied in the resolutions passed at the employers' conference would be attended with calamitous results to them. They know the oppressive conditions existing before the strike would soon be re-established, and that the present ruinous struggle into which they have been compelled to enter would go for nothing, and that the same battle would have to be fought over again with, perhaps, more disastrous results than a prolonged conflict at present. The employers have a large fund of experience to guide them in their present action, and they are not going to allow any hollow, sentimental notions of coercive measures to influence them in entering into a conference against their better judgment. The advocates of unconditional conference virtually ask the employers to abandon the position they have gained after successfully combatting all efforts of their opponents. They ask that special consideration should be shown to men who, after rejecting conciliation and forcing the employers into a conflict, broke engagements and violated agreements without scruple, in order to bring the vast machinery of trades-unionism into operation with crushing effect. These men have all through the present struggle ap-

proached the employers with threats and menaces, and, now that they have done their worst and utterly failed in their object, the employers are virtually asked to "turn the other cheek" to the smiters.

Matters seemed to grow worse and worse, and the labor council threatened to call out the gas stokers in Sydney. Some agreement was reached by which the various gas companies were temporarily supplied with coal, and it was very generally believed, in event of the gas stokers being called out, that Sydney would be enveloped in darkness, as was the case for a few days in Melbourne. The gas companies in Sydney obtained a further supply of coal and, with the help of non-union labor, managed to keep up the gas supply at reduced pressure. Coal, however, could not be obtained except at extraordinary rates, and a number of ships, including three or four from the United States, were obliged to leave here in ballast.

NON-UNION WOOL.

A difficulty also arose with the exporters of wool. The labor council refused to allow their men to carry wool to market, except such as had been shorn by union labor. A quantity of wool, both union and non-union, had arrived at the railway station, and the employers, failing to get help, undertook to cart it to the ships themselves. This was done under the escort of police and special constables.

The union men assembled along the route through which the wool was to pass and every obstacle was thrown in the way of its transit. A rush was made for the railway yard, which, after a serious struggle, was finally captured. Not a dray or cart was allowed to leave. Horses were unharnessed, vehicles were upset, and the wildest confusion prevailed. The employers, together with the police, were driven from the scene. The latter, however, upon receiving re-inforcement, returned to the charge and dispersed the mob. A number of drays and trollies were loaded and started to the wharf. The union men followed them, jeering and hooting, but no violence was attempted on their part until the wharf was reached; here they renewed the attack with clubs, sticks, blue metal, and other missiles. The riot act was then read, and the mob, still refusing to disperse, was charged by the mounted troopers, who rode them down and scattered them in every direction.

The next day several thousand bales of wool were carried from the station and put aboard ship without any opposition. The newspapers were unanimous in denouncing the conduct of the unionists, and described it as "disgraceful and barbarous. It was bad enough to resort to hooting and jeering for the intimidation of workmen, but to attack them with clubs, brickbats, and blue metal was a crime that should be severely punished." Numerous arrests were made and all those found guilty were punished by fines and imprisonment.

THE SHEARERS.

The cause of the union was greatly weakened by the violence of the mob, and, being unable to come to terms with the employers, the Trades and Labor

Council resolved to call out the shearers, one of the strongest and best-organized bodies in the colonies, and, although working under the same rules as other labor bodies, were looked upon as a quasi-independent organization that concerned themselves very little about other associations. The Trades and Labor Council had long recognized the importance of the Shearers' Association, and on the 26th of July last offered to assist them in any dispute that had arisen or might arise between them and their employers. In May last a dispute arose in Queensland between the shearers and the employers, and the former determined to boycott all wool shorn by non-union labor. The dispute was finally settled, and the labor association paid freight charges on a quantity of wool in lieu of damages for its detention. The rise and progress of the shearers' union and the rules under which they work form an interesting chapter in the history of the labor question.

There is, perhaps, no country in the world where such peculiar relations exist between employers and employés as in the vast island continent of Australia, where the population consists of only one inhabitant to the square mile. The proportion of wealth to each inhabitant is so great, and the development of the resources of the country has been so extraordinary, that the employé of to-day not unfrequently becomes the employer of to-morrow.

The nomadic character of the pastoral settlement, the liberality of the people in feeding wayfarers as they passed through the interior, the destructive effects of the periodic droughts on stocks, as well as other conditions in connection with the settlement of the country, all furnish interesting subjects for reflection.

The great value of the wool product and the rapid increase in the number of sheep created a great demand for shearers and shed hands. The occupation of the shearer was known to be very renumerative; he was enabled to go from one district to another, and, if a good hand, he could manage to have a place kept for him at the various stations extending over an area of hundreds of miles.

In this way he could find employment for five or six months in the year. Some of the shearers in time became owners of stock; others were idle and improvident, and, while waiting for the next shearing, created much trouble in the neighborhood. It was with them a distinctive nomadic life. As the country became more settled a number of shearers secured small holdings, and, when opportunity offered, accepted employment to shear sheep for others, that they might earn money enough to purchase stock and build sheds of their own.

A very bitter feeling sprung up between them and the nomads, who did every thing in their power to prevent their rivals from shearing, and a record of their method in combining and boycotting reads very much like the system practiced by some of the modern trades-unions. In time the shearers became thoroughly organized and a power in the land.

The Trades and Labor Council renewed their efforts to secure the co-operation of the shearers and it is claimed that they are now thoroughly amalgamated with other associations comprising the union.

At the time the shearers were called out the most amicable relations existed between them and their employers. There was no dispute about wages or hours of labor or any thing else, and in all matters pertaining to sheep-shearing the employers and shearers were in perfect accord. The shearers admitted that they had no grievance and merely came out in obedience to the call of the union, as it was necessary to bring all the pressure possible through the sheep farmers, in order that the steam-ship owners should come to terms. The strike did not prove as general as was expected. A considerable number refused to come out and others obeyed the call reluctantly.

As soon as the shearers struck work, actions were brought against them in the local courts under "the masters' and servants' act." These actions resulted in heavy fines being imposed against the men, with the forfeiture of their wages.

It was said by the friends of the union that the decision of the local courts could be set aside by appeal, as one of the terms of agreement was that they should shear only in accordance with the union rules, which meant that they could stop work when required to do so by the union. To appeal, however, would require a deposit of $97.33 in each case. This, of course, would have entailed great trouble and inconvenience to the union.

After the men had been out about eight days, they were ordered back again by the union. At first they were instructed to complete only existing contracts, but later they were allowed the privilege of making new agreements.

Many of the farmers made arrangements to employ non-union men and refused to take back the shearers, and in some cases actions were brought against their leaders for inciting the men to strike. The superior courts have not yet decided to what extent the shearer is liable under union rules for quitting work when called out by the union.

Several prominent law firms here are of the opinion that the contract under union rules exempts them from liability, as it is provided in the contract that—

> Any shearer may at any time before the completion of shearing, at his mere pleasure, leave, and he is entitled thereupon to be paid in full for all sheep shorn by him up to the time he leaves, subject only to the deduction of $4.38 a week for his board and lodging.

The same agreement gives the sheep owner the power to discharge his shearers before the completion of shearing, and no limitation whatever is placed on the voluntary act of either sheep owner or shearer as to either leaving or being discharged. The same law firms, however, recommended the shearers to resume work, in fairness to those who employed them, on the supposition that the work would be completed. It was contended that the sheep owners who employed union labor should not be placed in a worse position than those who employed free labor; that by resuming work and carrying out faithfully all existing contracts the cause of the union would be strengthened rather than weakened. The following is a summary of legal counsel consulted who dissented from the opinion of those supporting the union:

> (1) That the agreement does not protect the shearers from the penalties provided by the masters' and servants' act, 20 Victoria, No. 28, with regard to the servant who attempts to disregard his duty, and that, in addition to other penalties, he may be fined or, in lieu thereof, the whole or any part of his wages may be forfeited.
>
> (2) Or that the shearers can not recover pay for the work done for the period for which they have already served.
>
> (3) That actions for damages will lie against the defaulting shearers, and that their property, including selections, are liable to be taken in satisfaction of a judgment.

The labor council, whether accepting this view of the case or not, evidently did not think it good policy to keep the men out. To have done so much longer would have entailed a very heavy drain on their resources. The leaders of the union stated that one of the objects in ordering the shearers to work again was to remove any obstacle in the way of a conference for an early and amicable settlement of the disputes. Moreover, the pastoralists were placed in a very embarrassing position, as every day the shearing was delayed a heavy loss was entailed, and which was greater than under other circumstances, as much damage had already been done to the wool through grass seed getting into it, due to the effects of the heavy rains. A few days ago it was stated that the funds of the union were well-nigh exhausted; that the assistance promised from England and elsewhere was not forthcoming. When the London wharf laborers were on strike, $243,325 were raised in Australia for their assistance, and it was thought a like sum would be raised in England for Australia. According to cablegrams received here from England, much difficulty has been experienced in collecting funds, and up to the present time only about $68,131 have been received, and part of that has been obtained by loans. The London workmen are said not to be greatly interested in the Australian strike further than to see their fellow-workmen successful; and, besides, it is known that a large portion of the funds raised in Australia was contributed by the employers, who did not fully understand the causes of the labor disputes in England. Mr. John Burns is said to have taken up the cause of the Australasian strikers quite energetically, and it is said that a number of societies in London had consented to allow levies upon their wages. Mr. W. H. Champion, the London labor delegate to Australia, sent home very unsatisfactory dispatches about the strike. He said it had been grossly mismanaged, and that, if all the money asked for were raised, it would not prevent the failure of the strike. Mr. Champion found fault with the manner in which the strike had been conducted. Early in September last he said that it was not right for the union to dictate to the employers the kind of workmen they should engage. He also said he was opposed to the ill-treatment of non-unionists and to calling them blacklegs, but stated that they should be treated as friends and brothers and induced to join the union. He said:

> I want you to consider what is the reason why these non-unionists are not converts to our view on the matter. It may be that they have not been argued with. In that case the fault

> is more yours and mine than theirs. It may be that they were too hungry to listen to the appeal of reason and honor. In that case the fault is very much yours and mine, for the trades-unionism that has not found a remedy for such hunger should not have satisfied us. It may be that they would have joined unions, but were kept out by the entrance fee. Again trades-unionism is at fault, for, though it is right enough to regulate the members admitted to a trade, it is wrong to do so without simultaneously making provision for those excluded. Finally, it may be that, knowing better and without the excuse of hunger, they have deliberately gone against trades-unionism after we have argued with them, and such we must boycott. Now, seeing yesterday that one of your local ministers of religion had strongly condemned boycotting, it reminded me that St. Paul was the first advocate of boycotting in the sense in which I and all trades-unionists advocate and defend it. Speaking of those who were undermining and destroying one of his organizations, just as non-unionists of the stubborn kind undermine ours, or would do if we let them, he says: "Now, if any man obey not our word by this epistle, note that man and have no company with him, that he may be ashamed. Yet count him not as an enemy, but admonish him as a brother." But we must honestly do it, with the sole intention of making him ashamed, and not from motives of hostility or vengeance. If we do, we shall come to the same pass as the boycotting has brought Ireland at times and raise worse evils than even non-unionism.

The union societies in Sydney, Melbourne, and other places contributed freely towards the strike fund in spite of the difference of opinion as to management. As much as $4,866 was raised in one day. The locomotive and engine drivers, the iron workers, tailors, carters, carriers, and many other societies contributed freely; but in time many became dissatisfied, being out of employment, and wished to resume work upon the old terms.

COAL MINERS.

Many societies showed signs of yielding. The coal miners, however, seemed more determined than any other to hold out. The whole of the collieries in New South Wales were for a considerable time idle. The men persistently refused to resume work only on condition that the employers would consent to a conference. It is impossible even now to obtain coal in any of the large cities in Australia except at very high rates. The supply for the Government railways was insufficient, and, as no arrangements could be made with the union, the railway authorities, rather than stop the trains, entered into agreement for a supply to be cut by free labor. A number of men were accordingly dispatched from Sydney to work at the Carramell mine for $2.92 per day, with cooked rations, and 12 cents extra for every ton of coal cut, and with the promise of complete police protection. When the free laborers arrived at the mine, they were met by a delegation of the union, who persuaded about one-third of them to return to Sydney. The others remained; but, when they began to work, nearly two thousand miners belonging to the union assembled in the neighborhood and hooted and jeered them. The police were powerless to interfere, and the mine was rushed, and the free laborers were so severely handled that they scattered in every direction. The Government, upon hearing of this state of affairs, re-inforced the police and dispatched one hundred artillery-men with Gatling-guns to the scene. Upon the arrival of the Government troops the union men left for their homes, and the free laborers resumed work. Work was also begun at Mount Kembla, but under adverse circumstances. As soon as the free laborers arrived at the railway station, they were met by an excited mob largely composed of women and children. The free laborers were conducted to the mine by the military and police. When the laborers entered the pit, the mob climbed to the heights above it and rent the air with frantic screams. Similar disturbances were kept up for three or four days in succession. In time the union men became more orderly. Work was begun by the free laborers at a number of other mines, and, although the quantity of coal cut has thus far been insufficient, steady progress is being made.

The strike is said to be practically over. Free labor is being employed in all the colonies. There are frequent reports of disagreement in the labor council. Vessels have now no difficulty in loading and discharging cargoes in Sydney, Melbourne, Adelaide, and Brisbane. The chief trouble is an insufficient supply of coal. Leading firms in Melbourne, in their circulars, state that, if coal could be procured, the employers would not have to consider whether the strike was in existence or not. One firm reports that cargoes of Japan and Cardiff coal are afloat and 60,000 tons are hourly expected in Sydney and Melbourne. The coal-mining industry has hitherto been one of the most important in the colonies, ranking in New South Wales next to wool and live stock, the output of the New South Wales mines amounting to considerably over 3,500,000 tons per annum. About 800,000 tons of that are exported to Victoria and between 300,000 and 400,000 tons to the Pacific coast of the United States. The industry has made such progress that, previous to the strike, more than 10,000 persons found employment in connection with the mines, nearly 8,000 of whom were employed under-ground, and their average earnings were more than double those of Great Britain, that is, if based on the calculation that the miners receive in wages in the latter country the same proportion of the value of the coal as in New South Wales, which Mr. T. A. Coghlan, the Government statistician, estimates at 40 per cent. of the selling price at the pit's mouth. Mr. Coghlan states that it is difficult to make an exact comparison between the wages received here and in Europe, for the reason that the miners here are mostly paid by piecework. The minimum hewing price at the Newcastle collieries is $1 per ton; at Illawarra, 57 to 85 cents per ton; at the western district, 57 cents per ton. He gives the wages of the miners from $1.95 to $2.92 per day of eight hours. According to a recent table furnished by him, it would appear that every miner working under-ground in New South Wales extracts annually 479 tons of coal, which, calculated at the mean price, say $2.23 per ton, is equivalent to $1,068.44 per annum, against 303 tons extracted by each miner in Great Britain at $1.70 per ton, equivalent to $516; thus showing a very favorable comparison for this colony.

G. W. GRIFFIN,
Consul.

UNITED STATES CONSULATE,
Sydney, October 28, 1890.

COMMERCE AND INDUSTRIES OF PALESTINE.

REPORT BY CONSUL GILLMAN, OF JERUSALEM.

TRAFFIC AND BUSINESS.

There is but little, if any, improvement to be noted in the traffic, manufactures, and business of Palestine during the year 1890 as compared with the preceding year. The depression which has so long existed in all classes of trade seems to be generally recognized, especially by the natives, as a chronic ailment, to be submitted to as patiently as possible till better times come. The bulk of the population are poor *fellaheen* (peasants), whose few and simple wants are easily supplied, and who have an almost sublime reliance upon Providence, attributing every thing that befalls them, whether good or evil, to "the will of God," and doing little or nothing to avert the consequences of adverse circumstances. This is the fatalism of the East, which not alone pertains to the Moslem, but influences, also, the native Christians.

THE INFLUENZA EPIDEMIC.

An important agent of the depression from which business has suffered was the influenza epidemic, the terrible scourge which has been felt with greater or less severity almost all over the globe. We had scarcely recovered from the effects of the desolating fever epidemic of the summer and early autumn months of 1889, when the influenza attacked us with violence. The consequences were most distressing. Many persons, already weakened by the fevers, were carried off by this new visitation, which rapidly spread through the length and breadth of the province. For a time almost complete stagnation of business was the result. While the epidemic was in most cases severe, it mercifully was of but short continuance, terminating with the commencement of warm weather. It was thought by some that the disease was introduced by the Russian pilgrims, who come here in large numbers to visit the holy places. However that may be, it certainly had its origin in Russia.

AGRICULTURE.

During the early part of the season rain only came in moderate quantities and at wide intervals. Though by the middle of November sufficient rain had fallen to permit plowing to be commenced in some places, the hard soil over the greater part of Palestine was not softened enough for this purpose until the month of January, rather late in most districts for the sowing of wheat and barley. When rain came in great abundance in the months of January and February, it only proved an interruption to the late plowing.

Cereals.—The "latter rain," without which the ears of grain will not fill, was all that could be desired, falling in such generous showers as not only to insure the safety of the grain crops, but to give promise of a most favorable harvest. It is to be regretted that these promises were not realized. Though up to the reaping of the wheat and barley they bore a most flattering appearance, the result proved disappointing, falling far behind the hopes entertained of them in the beginning. There was plenty of straw; but, as to the grain, barley yielded only from ten to twelve fold and wheat only eightfold. The deficiency may be perceived when it is stated that what is considered a good crop on the Plain of Sharon should yield of barley fifteenfold and of wheat at least twentyfold.

Oats are quite a new crop in this country, having been introduced by some German farmers only a few years ago. They turned out well, and during the last two years did much better than barley, though this season they have suffered somewhat from the rust.

Year after year American corn is successfully planted in the German and Jewish settlements around Jaffa. The yield this year fell short, being only sixtyfold, while a perfect crop should yield a hundredfold. The price varied from $1 to $1.25 per bushel. The cultivation of corn may be expected to spread more and more throughout Palestine and Syria.

Vegetables and fruits.—With some exceptions, the year has proved a favorable one for the ordinary garden and field vegetables and fruit in general. The market has been usually well stocked with those important products, and reasonable prices have for the greater part of the time prevailed. Apricots, figs, and peaches were a larger and better crop than the average.

Oranges and lemons.---The crops of oranges and lemons, having been injured in the early part of the season by severe hailstorms, fell far short of the usual yield. The orange especially is one of the most important products of Palestine, and any injury to it is seriously felt. The Jaffa orange, as is well known, is a superior fruit and in great demand, being exported in large quantities. Though the supply this year was a limited one, the deficit to the orange grower, as is usually the case, was almost counterbalanced by the high prices the fruit commanded. In the early part of the season oranges sold for as low as $8 per thousand, but by the month of March they had reached the price of $20 per thousand.

Grapes and wine.—The grape crop promised well from the first, and the vintage just drawing to a close in the hill country has proved a most excellent one as regards both the quantity and the quality of the yield. The price of grapes varied, according to the quality of the fruit, from 80 cents to $1.80 per cwt.

Competent judges among our foreign colonists are of the opinion that the agricultural success of Palestine depends largely on its vine-producing capacity. At the present time the cultivation of the vine brings from 40 to 50 per cent. better returns than does that of any other product of the soil. As a consequence, each succeeding year more and more land is planted with vineyards, and various improvements are introduced, and new experiments tried.

The German and Jewish colonies around Jaffa and in its neighborhood are as yet the chief fields for this industry and the best wine is made there. Extensive ancient vineyards of native culture are, however, still seen at Eshcol and Ramallah and at other places in the vicinity of Jerusalem and Bethlehem. There can be little doubt that at no distant day vineyards will cover the hill-sides of Judea as never hitherto seen, even in its palmiest days.

The strange part is that from the blossoming to the perfecting of the grape not a drop of rain falls to moisten the soil, it being throughout the rainless season. This, perhaps, explains how the fruit never suffers from mildew, as in other countries. At or towards sunset each evening a cool westerly wind generally rises, bringing up with it during the night a mist from the Mediterranean Sea, which sufficiently waters the parched ground; but there is no excess of moisture. Neither are the vines afflicted with the diseases which have proved such a scourge in France and in some other wine-producing centers. In fact, the grape may be said to flourish here as in few other lands. New varieties of the vine are being constantly introduced from other countries and greater quantities of wine manufactured, though the native species are still in preponderance as to amount and form the chief source of supply. These last produce, chiefly, a most delicious fruit, varying from a green to a pale or golden yellow color, the bunches and the single grapes being usually of a large size. There is also a native grape of a purplish color and of close and smaller cluster and rather austere flavor, from which the red wine of the country, somewhat similar to claret, is made. However, probably from want of proper culture and improvement, no very distinctive varieties have arisen from any of the native species.

A method of grafting the grape-vine has been successfully introduced into Palestine by some German settlers at Sarona, and this has also been adopted by the Jewish colonists at Beshon-Zion, both places being in the neighborhood of Jaffa. They graft on the native stocks shoots of American, French, and Hungarian extraction, the first-mentioned variety being commonly the American Isabella grape. This is generally done in the month of February, though sometimes delayed till March. Though in the United States the Isabella is not a highly esteemed variety, being, on the contrary, rather one of our most inferior grapes, under the warm sun and cloudless skies of Palestine it becomes a most superior fruit, an excellent wine being manufactured from it. A newly planted vineyard on the Plain of Sharon begins to bear fruit with the third foliage, that is, in two years from the time of planting the vines. All the wines manufactured here are of the pure, unmixed juice of the grape.

Olives.—The olive is the most important fruit of the country. The crop of last season proved unusually abundant and of good quality. Olives give promise of a favorable yield the coming harvest, now near at hand. Though much oil is made in Palestine, the best olives grow on Mount Lebanon. They are always of a finer quality on mountainous or high land, while they are inferior at or near the sea-coast. This, together with the cultivation of the orange and lemon at Jaffa, which is far more profitable, is fast driving out the olive from that immediate vicinity. Five kinds or varieties of olive are generally distinguished here. Some of these are best for pickling, others are used entirely for the manufacture of oil. Both processes, as carried out in this country, are exceedingly simple ones, and need not be more specially referred to here further than to say that, in regard to the making of oil, the methods practiced in Palestine can vary little, if any, from those of patriarchal or Biblical times. The expressed oil, without being subjected to any special manipulation or process, is sold to the oil merchant. That intended for export is finally conveyed to Jaffa, where it is stored in great cemented cisterns particularly prepared for the purpose. From these it is emptied into barrels or casks, when required for shipment. Though some finds its way into other countries, the greater portion of the oil is exported to France, where, having undergone the mysterious mixings and adulterations or the so-called "doctorings" of the dealer, and which are kept by him a profound secret, it is placed upon the market and reaches the public at large labeled "Pure French Olive Oil."

The oil-cake, or refuse, remaining after the extraction of the oil is not thrown away, but is carefully collected and preserved, being highly valued for fuel, for which it always commands a high price, from its being peculiarly suitable for certain uses in this direction. For instance, the public bakers in Jerusalem consume large quantities of the article, preferring it to any other substitute for the purpose of heating their ovens.

Olive-trees, as is well known, attain an extreme age. Their vitality is almost incredible. Unless completely torn out and grubbed up by the roots or burned down, they seem to be indestructible. They are propagated by being grafted on the young wild olive, grown for the purpose. They do not commence to bear until from the tenth to the fourteenth year, counting from the first starting of the young wild olive-tree, though in exceptional cases, where a very young wild tree is grafted, fruit may be produced in six years. A small tree yields about 2 measures, or nearly 48 pounds, while a large tree in full bearing may produce as many as 12 measures of olives. An average yield for a medium-sized tree under fair conditions should reach from 5 to 8 measures, or, say, from about 120 to 190 pounds. It takes 1 measure of olives, or nearly 24 pounds of the fruit (stones and all), to afford 3 quarts of oil.

Where trees are totally neglected, they often cease bearing; but it is remarkable how soon they recover from the most shameful abuse and immediately respond with a crop to the least kind treatment. The slow growth of the tree seems correspondent to the great age it reaches. Tradition says that some of the older olive-trees of Palestine date back to the time of the Roman occupation.

Figs, dates, and almonds.—Figs of several varieties are grown abundantly all over Palestine, flourishing with little care and often receiving not the least culture. There is no exportation of the fruit, which is all required for home consumption. The crops this season of both figs and dates were a good average yield. The date is grown chiefly at Gaza, though large numbers of the stately trees may be seen ornamenting the orange groves at Jaffa. The taxing of all fruit trees by the Government, whether they bear or not, is an onerous weight for the poor people to carry and checks the investment of capital in this direction. Jerusalem, once celebrated for the profusion and magnificence of its date-palms, can now only boast of a few trees of that species, but one of which is of any great size. Almonds are only grown in small quantities, and are almost invariably brought to market in the green state. The crop was a fair one. Neither the date nor almond is exported.

Roses.—Although roses blossom all the year round in Jerusalem, the months of April and May are considered, *par excellence*, as the "season of roses." In the Valley of Roses, about 3 miles from Jerusalem, the shrub is cultivated largely. The flowers find a ready market in the city, and, when sold in the larger quantities for making rose-water, bring from $1.50 to $2 per bottle (6 pounds).

The rose harvest, which commenced in April, came to a close by the middle of May, and was a remarkably luxuriant and perfect one. The valley, when in full bearing, presents a beautiful sight. The quantity of flowers sold in Jerusalem, chiefly the product of the Valley of Roses, reached about 12 cantars, or 7,200 pounds. This was principally purchased by the convents and other religious institutions, which use large quantities of rose-water to sprinkle the shrines and other sacred places which abound here. The home crop, however, is not sufficient to meet the demand, a further supply of the blossoms having to be brought from Nablous, Tyre, and Sidon.

Rose-water is commonly made by most of the old families of Jerusalem. It is lavishly used at weddings and all festivals, the sprinkled guests often being literally drenched with it. This inferior article is made in the crudest manner, or simply by boiling the rose leaves and then straining off the water.

CURRENT MARKET PRICES.

The following statement exhibits the general prices of the common products of the soil at the present date in the Jerusalem market. Some of the articles mentioned, such as wheat and flour, of course, never remain very long at a fixed price, but are always fluctuating, influenced here, as elsewhere, by the condition of the crop, the money market, or other causes.

Articles.	Price.	Articles.	Price.
Wheat.....per measure *...	$0.50 to $0.70	Peas.....per rotol...	$0.10 to $0.13
Barley.....do......	.40 to .45	Grapes.....per cantar ‡...	4.00 to 6.50
Doura.....do......	.45 to .50	Oil:	
Beans.....per rotol †...	.20 to .22	Olive.....per gallon...	.60 to .70
Flour.....do......	.12 to .14	Sesame.....do......	.80 to .85
Lentils.....do......	.12 to .14	Wood (for fuel).....per cantar...	1.40 to 1.50

* 48 pounds. † 6 pounds. ‡ 600 pounds.

MORTALITY OF HORSES, SHEEP, AND CATTLE.

Towards the close of the summer and the beginning of autumn there was an unusually great mortality among horses, sheep, and cattle in and around Jerusalem. With the exception of the sheep, there did not seem to be any particular known disease connected with this mortality. The hot weather, overdriving, and ill-treatment, including insufficient or improper feeding, were possibly the principal causes of the fatality so far as regards the horses. Want of sufficient water, and that used being of inferior quality, contributed to produce the result complained of in the cattle and sheep, though in the latter, in most cases, it was found they were afflicted with disease of the liver. The loss to drovers and butchers was very great, especially in the case of sheep, amounting, in more than one individual instance, to $800 per week.

MANUFACTURES.

In a country like this, where, in the American and European sense, there are no extensive manufactures, the chief resources of the people must be drawn from agriculture. I have, therefore, dwelt the more largely on the latter subject. With the exception of wine and oil, the chief manufactures here are of olive-wood and mother-of-pearl, the principal seat of the pearl work being at Bethlehem, where it is brought to great perfection. The demand for both kinds of goods still continues, and much of the better class of work finds its way to the United States and Europe.

Soap of excellent quality made from olive oil and leather of no inferior grade to some extent supply the home consumption. The common woolen cloths manufactured in Palestine, though superior for their kind, are only used by the peasantry. The making of ice by the former enterprising manufacturer of it, after an interval of more than two years, was again commenced at Jaffa this summer under the name of the Anglo-American Ice Company. The article was of good quality and fully supplied the Jerusalem and Jaffa demand for it, which, for various reasons, is not extensive.

THE JERUSALEM AND JAFFA RAILWAY.

The official ceremonies connected with the commencement of the work on the Jerusalem and Jaffa Railway took place near Jaffa on the 31st of March last in the presence of the governor of the pachalic of Jerusalem and other officials. The firman of the Sultan gives three years in which to complete the work, which is in the hands of the French company known as Société des Travaux Publics et Constructions à Paris. It is hoped, however, that the railway will be in working order within less than two years from the date of the commencement of the work, and it is expected that regular trains will be running from Jaffa to Ramleh before the close of this year. Connection between Ramleh and Jerusalem can be made by carriage and wagon, as hitherto, over the present excellent macadamized road.

My last annual report gives the route selected for the railway, which will, in all probability, be adhered to. This leads from a point on the coast immediately north of Jaffa, and, passing through the German colony of Sarona, crosses the Plain of Sharon near the towns of Lydda and Ramleh, entering the hill country near Artuf, proceeding not far from Colonia, and approaching Jerusalem through the Plain of Rephaim and close to the German Temple Colony, near the Bethlehem Road.

The work is still prosecuting under the French company, but to an American it seems to progress at an exceedingly slow rate. A few workshops have been erected at Jaffa, and also a pier has been built for the landing of the locomotives and the materials required for the construction of the road. Of these last, several cargoes of sleepers, rails, timbers, coal, and other supplies have been received.

The locomotives for the railroad did not arrive at Jaffa till about the middle of September last. They are three in number, and are named, respectively, "Jerusalem," "Ramleh," and "Jaffa." They have been purchased by the company from the Baldwin Locomotive Works, of Philadelphia, by whom they were built, and have so far given complete satisfaction. It is of interest to our citizens and, indeed, the world at large to know that the first locomotives ever used in this ancient land were made in the New World in the United States of America. It is also an honor to the Philadelphia firm that they should be preferred to all their European rivals in receiving the order for the engines.

It may not be without interest in this connection to state that the Jewish rabbis interpret the prophecy in Nahum as having reference to the locomotive, and they now regard the prophecy as fulfilling. The words are significant:

> The chariots shall be with flaming torches in the day of his preparation. * * * They shall seem like torches; they shall run like the lightning. (Nahum ii, 3, 4.)

Since the arrival of the locomotives the work all along the line, and especially across the plain, is being pushed with greater rapidity, and there seems little doubt that regular passenger and goods trains will be running, as promised, over the west end of the road as far as Ramleh before the close of December. The great number of American travelers visiting Jerusalem every year renders these particulars of importance to our people.

BUILDING AND IMPROVEMENTS.

During the year fifty new houses have been added to the city, while additions and repairs have been made to thirty houses. A good carriage road, paved on the sides, has been made within the walls, extending from the Austrian Hospice, near the Damascus Gate, to St. Stephen's Gate, and, with similar roadway constructed in other parts of the city, amounts to 1½ miles. The regular stone pavement made within the walls during the year is 2½ miles. Beneath all of the above well-constructed sewers have been built.

The macadamized carriage road to Ain Karem (St. John of the Desert), a distance of 8 miles, has been completed. A similar road from Jerusalem to the Convent of Cattamoon, 2½ miles in length, also has been made.

INCREASE IN THE VALUE OF REAL ESTATE.

For several years past there has been a decided advance in the value of real estate in and around Jerusalem and Jaffa. This is a remarkable feature; and, though partly accounted for by the circumscribing of the building area by the firman of the Sultan, is, no doubt, also to be attributed to the constant influx of residents and the laying up of all purchasable land, some for speculative purposes. The railway now under construction has also a pronounced influence in this direction.

DISCOVERY OF AN ANCIENT ROMAN PAVEMENT.

Some important discoveries have been made during the year in the archæological field. In the months of June and July, when excavating for the sewer and paving of the street running south of the Austrian Hospice and past the Ecce Homo Church and Convent, an ancient Roman pavement several feet below the surface was brought to view. It was similar in every respect to the massive ancient pavement uncovered two years before in the adjoining streets and at the time described by me in my report to the Department. Both of these Roman pavements connect, and the result is what more than two years ago I foretold would be found to be the case, viz, that a continuous Roman pavement would be found leading from the Judgment Hall of Pilate, in the Ecce Homo Convent, to the Damascus Gate, and through this to the place of execution (crucifixion) on the hill outside. This last-discovered pavement runs from the Roman pavement of the Damascus Road street past the Turkish barracks and Ecce Homo Convent, as already mentioned, to the Tower of Antonio, and I have no doubt the feet of our Lord trod those stones on the way to his crucifixion and back and forth that terrible night before.

Two years ago my personal investigation satisfied me that the present position of the Damascus Gate is that of the original gate. The fact of the two Roman pavements to which I have referred meeting there at an acute angle, when taken in connection with other points, settled that question for me. This is another justification of the assumptions of the sagacious Robinson. It is also a formidable obstacle to surmount in supposing the Church of the Holy Sepulchre to cover the place of the crucifixion and the tomb of Christ, who was certainly put to death without the gate and outside the walls.

It is important to note that the recently found pavement opposite the convent is exactly on the level of the Roman pavement beneath that building and considered the Judgment Hall of Pilate, a further confirmation of its being, indeed, the Gabbatha (John xix, 13).

Of course, as in former instances, in constructing the sewer the Turks broke up the pavement; so it can never more be seen, having been almost completely destroyed. This, it is only proper to explain, was not done through any bigotry or spite, as, indeed, the Moslems consider Christ the greatest of prophets, excepting Mohammed, but simply because the pavement was to them an obstruction which had to be removed. Still, we have preserved the stones made sacred by the feet of the Redeemer, and the flags saved will be used to pave part of the Ecce Homo Church.

SANITARY MEASURES.

In view of the threatened approach of the cholera, various precautions have been taken in the direction of improving the sanitary condition of the city. A committee of the leading physicians has been formed, and, with the support of the entire consular body, there has been a thorough cleaning and whitewashing of the more unclean quarters, the *cavasses* (guards) of the various consulates aiding the municipality in the visitation and inspection and in enforcing the regulations; so that at the present time Jerusalem is in a cleaner and more healthful condition than it has known for many years, and it is hoped the dreaded scourge may be averted.

AMERICAN AND OTHER VISITORS.

The number of visitors to the Holy City this year largely exceeded that of any previous year. This may also be said of American visitors, who greatly preponderated over those of any other nationality. The English were the next largest in number. In this statement are not considered the large bodies of pilgrims who come to worship at the sacred shrines in thousands, as, for instance, the poor Russian peasants, who travel on foot all the way from Russia.

JEWISH IMMIGRATION.

The Jews from all lands continue to come to Palestine to reside in increasing numbers. Many of them are aged persons, who immigrate with the sole object of dying in Jerusalem, in accordance with their religious belief, so that they may be buried on the Mount of Olives. But others of this people join some of the Jewish agricultural colonies established under the Rothschild patronage, or engage in trade or traffic.

The decree of the Sultan obliging the expulsion of such Jews, the modification of which "to refer only to Jews coming here in large numbers"—practically its repeal—was brought about through the efforts of this consulate, I here refer to in order to state that this modification is of late faithfully adhered to by the Ottoman authorities. Indeed, it would seem to be most liberally construed, as I have learned that recently four hundred Jews at once landed at Jaffa without the least obstruction, which is sufficient proof of what has been accomplished.

THE PALESTINE EXPLORATION.

The directors of the Palestine Exploration Fund, London, have at length, after the lapse of many years, received the expected firman from the Sultan giving them permission, under certain restrictions, to renew their excavations and researches in the Holy Lands. Arrangements were entered into with Mr. Flinders Petrie, the well-known and successful explorer of Egypt, to carry on the work, the Mediterranean coast in the vicinity of Askelon and Gaza being selected as the field of operations. Mr. Petrie's discoveries, though interesting, appear to be hardly up to his expectations and in some respects were quite disappointing. It is probable the work may be continued another season with better results.

AMERICAN PETROLEUM.

I regret to have to report a still further falling off in the importation of American petroleum, which this year has declined to 1,000 cases, or 700 cases less than last year. Strange to say, there has not been a corresponding advance in the importation of the Russian article, which in the same period has declined to 32,000 cases, being a falling off of 20,000 cases. This decline in both instances is probably due to the overstocking of the market last season. I have so often in my former reports represented the conditions connected with the introduction of this article into Palestine that it is unnecessary I should further dwell upon the subject.

DECLARED EXPORTS.

The value of the declared exports from this consular district during the year ending September 30, 1890, is as follows: Quarter ending December 31, 1889, $741.37; March 31, 1890, $1,752; June 30, 1890, $1,469.82; and September 30, 1890, $510.01; making a total of $4,473.20, and being an advance of $280.06 over last year's exports, which were nearly twice the amount of those of the previous year, and which show that the advance in this direction, notwithstanding various adverse circumstances, is of natural and healthy growth.

JAFFA.

I have referred to the remarkable increase in the value of real estate in and around Jerusalem and Jaffa, and have suggested some of the reasons for this appreciation, which has been of several years' continuance. The large amount of land added each year to the orange groves and vineyards in the neighborhood of Jaffa under the German and Jewish colonies must be considered as one of the most important causes of this advance in the price of land in that section. Of late the large expectations indulged in respecting the railway now building to Jerusalem are having a like influence; so, also, are the hopes that a harbor may be constructed by the railway company; but so far there are no positive indications that they contemplate making such a work, which would be a costly undertaking.

HENRY GILLMAN,
Consul.

UNITED STATES CONSULATE,
Jerusalem, October 16, 1890.

THE EDINBURGH INTERNATIONAL EXHIBITION.

REPORT BY CONSUL BRUCE, OF LEITH.

GENERAL EXHIBIT.

The Edinburgh International Exhibition, formally opened to the public by the Duke of Edinburgh on May 1 last, was closed October 31, 1890. It was designed at first merely as an electrical exhibition for the display of engineering, electrical, and mechanical machines in commemoration of the opening of the Forth Bridge, but the original plan was enlarged until it assumed the character and title of a general international exhibition.

The main building, 700 feet long by 200 feet wide, exclusive of the dining-rooms, was divided into two wings by a concert hall, 190 feet long by 100 feet wide, capable of seating about three thousand people. East of this hall were arranged the courts of foreign exhibits, to wit, Germany, France, Italy, Austria, Russia, etc. The space west of the concert hall was especially devoted to the exhibits of Great Britain. The courts were 50 feet in width and 33 feet in height to the center of the arched roofing. The main building was tasteful in architecture and well lighted for the display of exhibits.

The machinery hall, 680 feet long by 150 feet wide, with a clean span of 80 feet in the center, was well adapted for the placing of electric dynamos and other machines.

North of the machinery hall was a grand stand capable of seating twenty-five hundred people, with a race-course and grounds for all kinds of sports, partly surrounded by an electric railway. A panorama of Trafalgar, the Swiss chalet, a Japanese village, a Venetian glass factory, and the American corn exhibit also formed central and attractive features of the exhibition landscape.

The total estimated cost of the exhibition was about $250,000, of which $100,000 was for the main buildings, $75,000 for machinery and locomotive hall, etc., $35,000 for the art and sculpture galleries, etc., $25,000 for roads and outside bridges, $10,000 for the recreation grounds, and $5,000 for offices and entrance gate. The actual cost, however, greatly exceeded this amount, and the grand total was about $360,000.

At the main entrance the visitor's attention was at once attracted by Belfast looms manufacturing linen, and a little to the left of these among the British exhibits there was a fine display of India rubber by the North British Rubber Company (limited), of Edinburgh, of which Mr. William Bartlett, resident of Edinburgh, but a citizen of Connecticut, has been superintendent for almost twenty years. This exhibit presented all the possible development of India rubber, from the tree in Brazil up to the point where it passes into the various forms of goods ready for the consumer's use. In the mechanical department a very large wheel tire weighing 600 pounds was shown, together with an enormous rubber belt 48 inches wide, eight-ply in thickness. Interesting to cyclists is a clever invention by Mr. Bartlett, which he has recently patented on both sides of the Atlantic, known as the "clincher" tire and rim, which enables the tire to be put on without tension and without cement. It is also said to prevent mud throwing, and will therefore be acceptable to cyclists on both sides of the ocean. Vulcanized rubber, which was introduced into Scotland in 1856 by a company largely composed of members of the North British Rubber Company, also had an extensive exhibit.

The artisan section was creditable, but largely of the toy and ornamental character. The picture gallery was not famous for excellence, and many of the pictures, which were disposed of by lottery during the last week of the exhibition, were not worth the "drawing."

The British India court was interesting, as the goods were hand-made, a group of natives manufacturing the wares that were displayed. Various brass-work vases and copper trays were especially worthy of mention.

The Italian exhibit, occupying 20,000 square feet, was artistic, including statuary, carved wood-work, antique furniture, majolica ware, pottery, etc. All of the principal Italian cities were represented, and the exquisite marble statuettes had a full share of the best visitors.

Austria had 15,000 feet of space, occupied by seventy or eighty exhibits. The china and glass were noticeable, and it is said that the Queen purchased one of the sets, paying $4,000 for the same. The Bohemian glassware was specially attractive, being of various colors poetically designated amethyst, rainbow, and strawberry, according to color.

France occupied 20,000 feet, with seventy-five exhibits, which were chiefly chocolate, champagne, Burgundy, Cognac, fancy leathers, lace, fans, silks, perfumery, jewelry, etc. The greater number of these exhibits were from Paris.

The Russian exhibitors were few, and eonsisted mostly of fur dealers, who were, however, exceedingly well patronized. The exhibitors were principally from St. Petersburg and Moscow.

The Belgian exhibit consisted principally of beautiful laces from Brussels and Mechlin, fancy boots, shoes, etc.

The German exhibitors were mainly from Berlin, the Rhenish provinces, and Saxony. The exhibits consisted mostly of Dresden china, glassware, etc.

Canada was represented by various kinds of North American Indian work, as well calculated as Cooper's novels to keep Great Britain fast in the faith that the greater part of American life is still barbarian. Some of the Indian baskets were being manufactured by Mr. Ching-ach-cook, presumably a native of Quebec or Niagara Falls.

Turkey and Algeria had booths close at hand to Canada, amicably blending the Orient and Occident, with a rich and beautiful display of silks from Damascus, mother-of-pearl, olive-wood from Jerusalem, rich perfumes, confectionery, etc.

The Venetian glass factory abounded in all sorts of delicate and artistic glassware, with a well-seated amphitheater, where spectators could witness the rapid process of manufacture.

The mechanical genius and invention displayed in the machinery hall made this, to the practical man, the most profitable part of the exhibition. Here one could feel, in the presence of vast machinery in motion or at rest, that the exhibition was in reality something more than a series of booths or a grand bazaar. It was a relief to find a spot where one could stop and question an engineer or attendant without being assailed by the solicitations of shop-keepers who had but one idea—not to show, but to dispose of their wares.

Near the center of this grand hall stood a marvelous pair of horizontal compound engines, by Messrs. Robey & Co., of Lincoln, one of which was capable of developing 320, and the other 260, horse-power.

The larger of these engines was fitted with triple expansion gear and had a fly-wheel 15 feet in diameter, and the lesser, which was erected on one massive test plate, had a fly-wheel 12 feet in diameter. These were specially made for the exhibition, and were employed in driving the whole of the arc dynamos used in lighting both the exhibition buildings and grounds, the power being transmitted by rope driver. Behind these engines was situated the boiler-house, in which there was an open dial battery of Lancashire boiler (by Messrs. Galloway, of Manchester) of a combined capacity of 2,500 horse-power. From these boilers practically the whole of the steam required for driving purposes was supplied at a pressure of 110 pounds to the square inch. Besides the two engines just referred to, there were two others in their immediate neighborhood which were used in connection with the lighting of the grand concert hall, in which the incandescent system was in operation. These were of the Westinghouse type, and specially constructed for the occasion by Messrs. Alley & Maclellan, Glasgow, one of them being of a novel design. It was on the triple expansion principle, and its performance was closely scrutinized.

The shafting used in transmitting the power to the different parts of the hall was entirely of steel. That in the dynamo court was 4½ inches in diameter, the lengths being coupled with adjustable loose collars, and it made 230 revolutions per minute. In the machinery hall proper there were two distinct lines of shafting, each 3 inches in diameter, carried on frames 10 feet high surmounted by Lancaster and Tonge Plummer blocks. Here, also, adjustable loose collars were used in the couplings. The normal speed of this shafting was 180 revolutions per minute. The arc light dynamos were driven from a counter-shaft, on which there were thirteen steel pulleys constructed on a somewhat new principle by Messrs. Thomlinson & Walker.

The dynamo court, situated in the center of machinery hall, was 120 feet long by 80 feet broad. The electricity with which the entire building and grounds were illuminated was generated here. For the purpose of carrying out the lighting scheme the executive contracted with two firms, viz, the Brush Electric Engineering Company, of London, and Messrs. King, Brown & Co., of Rosebank works, Edinburgh. Six engines were supplied by Messrs. Robey & Co., each in itself admirable as an example of modern engineering skill.

The post-office exhibits included a series of drawings illustrating the early days and progress of the postal system. Postage-stamps were shown in great variety, and the expansion of Edinburgh and Glasgow was demonstrated by the presence of the directories of these towns, the former from 1773 onwards and the latter from 1784 to 1889.

Telegraphic apparatus were shown, from the earliest primitive instruments to the present rapid transmitter, and specimen pieces of the line now known as the "fossil telegraph." There was also shown a piece of the first submarine cable between Dover and Calais, picked up in 1875. In contrast to these the visitor saw specimens of the strong steel-sheathed cables of the present day.

The locomotive section emphasized the advance that has been made in engineering science within the last fifty years. Side by side with the first crude attempts at the making of engines and other rolling stock were placed some of the latest and finest specimens of the engines and carriages used by the leading railway companies of the Kingdom. Here was an old locomotive built by Trevithick; here an engine tender and carriage which were run on the Stockton and Darlington Railway, the first railway that was made in this country. The engine was built by George Stevenson in 1825, and was used till about thirty-five years ago. The contrast between old and new was most marked. The old tender was of the model type of those early days, and was used as the boiler of the engine, while the wagon which carried the coals was one of the caldron coal wagons, whose carrying capacity was about 3 tons. Another feature worthy of notice was that behind this wagon was an iron pitcher in which coals were burned. This served the purpose that lamps do now. The old carriage exhibited was also a part of the Stockton and Darlington rolling stock. It was a composite carriage, and was built in 1840 at Carlisle. For the last twenty years it has been laid aside in a warehouse at Waskerly, and the present is the first time that it has been brought out since.

The next exhibit was a powerful engine belonging to the Great Northern Railway Company. It was one of the ordinary express engines of the company, and was exhibited at the Newcastle Exhibition in 1887. Since that time it has run 105,000 miles. The maximum speed attained by it is 75 miles an hour and its average running is from 52 to 54 miles an hour. Engine and tender weigh 85 tons. The driving-wheel is 8 feet 1 inch in diameter.

Next to the Great Northern was a splendid express engine belonging to the Northeastern. This engine was built to run the ordinary express trains. Its average speed is about 52 miles an hour, though it is claimed that a speed of 86 miles an hour was reached with a train of eighteen main-line carriages. This engine has a single driving-wheel with a diameter of 7 feet 7 inches. The boiler is built for a pressure of 200 pounds to the square inch, but the usual working pressure is 180 pounds. The total weight of engine and tender in working order is 90 tons.

The Caledonian Railway Company have an exhibit of one of their express engines built at their works at St. Rollox, Glasgow. It has an 18-inch cylinder, with 26-inch stroke, and has a coupled driving and trailing wheel of 6 feet 6 inches diameter. It is also fitted with apparatus for taking in water when running. Its maximum speed is between 70 and 76 miles an hour. In full working order it weighs, with tender, about 90 tons.

The famous broad-gauge engine "The Lord of the Isles," belonging to the Great Western Railway Company, was also exhibited. This engine was also shown in the London Exhibition of 1851, the year in which it was built. Since then it has run 1,000,000 miles. It runs on the broad gauge—the Scottish railway gauge is 4 feet 8½ inches, while the Great Western gauge is 7 feet.

The water railway, or "Chemin de-fer Glissant," one of the wonders of the Paris Exhibition, which there excited the admiration of Mr. Gladstone, was one of the great novelties of the exhibition. The following is a brief account of the principles of its construction:

> During the journey a thin bed of water, under pressure, is interposed between the skates and the rails, and so destroys the contact between the two. The resistance to locomotion is thus reduced to the smallest possible limit, and is not more than a fraction over 2 pounds per ton weight of the carriages. All the vehicles of which the train is composed, being so raised, are thrust forward by horizontal columns of water ejected under pressure from fixed places on the lines at short distances, and which derive their supply from a pipe placed under the wagons in the center of the line all the way from one extremity to the other. The first wagon opens the propulser, and the last closes it in such a fashion that this thrusting action of the water is exercised only during the passage of the train above the propulsers.' The train used consisted of two carriages and tender, and was supported on fourteen skates. Its rate of locomotion varies according to the pressure of the water in the propulser, but at a normal and easily attained pressure the speed is 75 miles an hour, while with pressure doubled in force the speed that can be attained is 120 miles an hour. One peculiarity of this system of locomotion is its adaptability to the weight of the train—the heavier the train the greater the pressure on the valves that control the supply of water; and, these being opened more or less, the propulsive power is increased or diminished. Another novel feature is the brake system. With ordinary trains there must be a brake on the circumference of the wheel, as well as the withdrawal of the motive power. In this instance the loss of motive power is quite sufficient. Withdraw the water and the train, though going at a high rate of speed, comes to a standstill in an incredibly short space of time. The system is the invention of a M. Gerard, and is intended to be applied to industrial purposes. Its inventor claims that trains could be constructed of much lighter material than we are accustomed to; that the economy of motive power would be great, the speed attained high; and, also, that the comfort of the traveling public would be greatly enhanced, the motion of the carriages being easy and pleasant. Last, but not least, there would be no noise or smoke of the engines.

The electric, the Yelper, and the switchback railways were all well patronized. The exhibition grounds and buildings were brilliantly lighted. The number of arc lamps was 365 (283 in the buildings and 82 in the grounds), each of 2,000 candle power. The electric current for the supply of these lamps was provided by fifteen dynamos of the Brush type.

THE AMERICAN EXHIBITS.

The principal American exhibits were Edison's phonograph, the American Indian corn exhibit, Singer and Wheeler & Wilson's sewing-machines, Armour's sample stock, Gordon & Dilworth's canned goods, and various typewriters. In addition to these, were shown splendid results of American labor and invention—Boston book-cases, American desks, American cameras, etc.—hailing, however, from London and managed by British capital. The phonograph and American corn naturally claimed the greatest attention, alike of the press and the people.

The Edison United Phonograph Company's exhibit occupied the lecture hall of the exhibition, a large room some 70 feet square. Around three sides of the room eight kiosks, or stands, were erected. In each of these was placed a phonograph. The remaining side was occupied by a raised platform, and in the center there was sitting accommodation for about one hundred and fifty people.

On entering the visitor was invited by the attendant to the first kiosk to listen to a sort of introductory speech somewhat descriptive of the exhibit, which concluded with an intimation to pass on to the next stand.

Stand 2 contained a treadle phonograph used for loud reproductions.

At stand 3 a phonograph driven by the electric light current reproduced music.

At stand 4 was tested the practical utility of the machine, for here people were allowed to speak their correspondence into the instrument, and then, taking the grams on to the next stand, have them written out on the typewriter, or, by going on a little further, have their speech or remarks set up in type by the Lagerman typotheter, or type-setting machine, before their eyes in a marvelously short space of time. Five hundred words spoken to the phonograph could be set up in type and printed in thirty-eight minutes from the time the letter was dictated.

These four stands show the phonograph in a light that is entirely new (at least in Europe) as a thorough, practical business machine. At the next stand there was vocal music, and at the last stand the adaptability of the phonograph to telegraph work was illustrated by having a sounder and key attached to the phonograph table.

Hung around the walls were numerous diagrams and sketches illustrating some of the uses to which the machine will soon be practically put.

Altogether the display was most effective and very well arranged for showing some of the capabilities of the machine, and this exhibit was without doubt the most complete and practical of the phonograph that has thus far been seen in Europe.

Mr. Charles R. Johnstone, in addition to his general duties as engineer in charge, gave three times a day a short but effective and thorough description of the machine, having for the purpose a phonograph placed on the platform.

The American corn exhibit is a new move in the right direction in Europe, and Col. Charles J. Murphy, who has recently been appointed statistical agent for Europe by Secretary Rusk, of the United States Agricultural Department. He has for years entertained the idea that the abundant corn fields of the great West should supply a cheap and nutritive food to the laboring classes of Europe. He has labored for three years in this direction, and the little hand-book which he issued and distributed in Great Britain during the last few months is awakening the attention of the people at large to the fact that the stored up sunlight in the autumn shocks of Kansas, Nebraska, and Missouri can be brought even cheaper than oatmeal, etc., to the very table of the working-man in Great Britain, France, Germany, Norway, and Sweden. His hand-book presents forcibly and clearly the history, production, medicinal virtue, and the cheapness of Indian corn as human food, with one hundred and thirty formulas for preparing and cooking the same. The Scotch people are said to move cautiously and slowly, but Colonel Murphy possesses the enthusiasm which is destined to win. He goes from Edinburgh to the East End Industrial Exhibition in Glasgow, which opens early in December, and he is entitled to the best wishes and support of every farmer in the United States.

The Agricultural Department well said, when Colonel Murphy started on his corn crusade to Europe:

> It is well conceived and opportune; and we can not but feel convinced that, if those who are interested in our corn industry will only be liberal in affording you the means of carrying out your project, it will result in a much greater familiarity with, and appreciation of, our corn product by Europeans, and must consequently develop a greatly increased demand therefor—a demand which we all know we are only too well able to supply. There is not a railroad running through the great corn belt of the United States, not a produce exchange at our principal corn and export centers, that is not especially and directly interested as a beneficiary in your work. If carried out as you propose, it will enhance the value of every acre of land in the corn belt.

The exhibit was centrally located near machinery hall, and was of great interest to visitors. The tasteful building was 75 feet in length and 40 feet in width, where literature on the subject was issued, and where food prepared from the maize in various forms could be had at a nominal price. Thousands of children from different charitable organizations were given free meals, which has led to its use already in several institutions. One of the daily newspapers has well said:

> No doubt, many, after seeing and tasting the numerous excellent qualities of that form of food, will wonder why they have so long been kept in ignorance of them. The object of the exhibit, which has been brought together through the enterprise of Colonel Murphy, is to stimulate throughout Europe the use of maize as an article of human food. Hitherto it has only been used in Britain for feeding cattle and for distilling purposes, but before long it is sure to take its place in the human dietary. The corn seems to be as nourishing as wheat or oatmeal, and has many other advantages. It is, for one thing, a good deal cheaper, being only one-third the price of wheat and about half the price of oatmeal, while it can be sold in this country, after importation, at a remarkably low price. If people are once acquainted with the really wholesome and nutritious food which can be made from this corn, it is thought that it will become so popular that the exportation from America will be large enough to prevent any waste whatever. Then, there is so much more land that can be put under Indian corn, and the crop is so steadily increasing in quantity and quality, that there is little fear of the demand exceeding the supply. There are possibly many difficulties in the way of popularizing it; but, with energy and enterprise, which, it may be taken for granted, would not be lacking, backed by the undoubted excellence of the food itself, these difficulties ought easily to be surmounted, and the use of maize as a part of human diet become universal. The Indian bread is pleasant to the taste, and it is lighter than oatmeal. Corn is one of the staple articles of food in America, and the forms in which it can be prepared for the table are innumerable.

Colonel Murphy was awarded a silver medal for his admirable exhibition of America's great product.

ATTENDANCE.

It was estimated, when the exhibition was contemplated, that the total attendance for the six months would reach 4,000,000 people, but the actual number, when the turnstile turned for the last time October 1, 1890, was only, in round numbers, 2,300,000. It therefore fell short of the financial success that was anticipated. The reason for failure in this direction has been attributed to several causes:

(1) The location was not convenient to the city, and the services of railway trains and horse-cars were not to be depended on.

(2) The weather during last summer in Scotland was very wet and disagreeable.

(3) It followed too closely upon other exhibitions in Great Britain and on the Continent, to wit, the Manchester Exhibition in 1887, the Glasgow Exhibition in 1888, Paris Exhibition in 1889, and this was the third in Edinburgh during the last six years.

(4) The exhibition was opened to the public before it was in readiness. The first day showed many empty stalls, unpacking of boxes, and general bustle of preparation, and, therefore, received early in its history the criticism of the press. As the exhibition proceeded the word went about Scotland that there was too much solicitation to purchase goods at the various bazaars. Criticism was everywhere in the air, and its doom was sealed. It depended too much on daily attractions of foot-ball matches, balloon ascents, and pyrotechnic displays, in this way departing entirely from its original purpose.

The rule at first established in regard to selling of goods was that all goods could be sold which were actually manufactured in sight of the visitors; but it was not adhered to, and sufficient discretion was not used in admitting exhibits.

The balance-sheet showed a deficit of about $150,000, which swallowed up the $130,000 guarantied mostly by Edinburgh citizens. It was worthy of a better result, for it was in many respects a good exhibition. Disencumbered of outside matters foreign to the original intent of the projectors, it would have been, what all such exhibitions should attain unto, a potent factor in practical education.

WALLACE BRUCE,
Consul.

UNITED STATES CONSULATE,
Leith, November 21, 1890.

Tax on foreign lard in Peru.—The American legation at Lima reports that a decree was promulgated on October 27, 1890, imposing a specific duty of 15 centavos (about 8 cents American) per kilogram (2.205 pounds) on foreign lard imported into Peru. The decree takes effect in four months from its promulgation.

INSURANCE COMPANIES IN RUSSIA.

REPORT BY CONSUL-GENERAL CRAWFORD, OF ST. PETERSBURG.

Of the nineteen share-holding insurance companies doing business in Russia in 1889, I have been able to gather statistics of the following only: First Company of Russia, Second Company of Russia, the Salamander, the Moscovite Company, the Russian Company, the Company of Warsaw, the Moscow Company, the Commercial Company, and the Baltic Company. The above-named insure only against fire. The following six, viz, the St. Petersburg Company, the Northern Company, the Rossia, the Yakor, the Volga, and the Nadejda, are engaged in various forms of insurance. Of the latter group of six companies, the Rossia is worthy of especial study, inasmuch as it undertakes insurances against fire, life, accidents, and transports.

The Company of Insurances on Revenues and Capitals, founded in 1835, has for its specialty solely the various forms of life-insurance.

The Russian Company deals with insurances on transports of goods by water.

The Russian Lloyd occupies itself with transport insurances. Lastly, the newly founded company, the Pomostch, has for specialty the insurance of accidents and of window-panes.

Up to January 1, 1890, the stock capital of the nine companies which form the first group (insurance solely against fire) amounted to $6,500,000, as follows:

Companies.	Capital.	Companies.	Capital.
First Company of Russia	$2,000,000	Moscow Company	$500,000
Second Company of Russia	750,000	The Company of Warsaw	500,000
The Salamander	1,000,000	The Commercial Company	250,000
The Moscovite Company	1,000,000	The Baltic Company	250,000
The Russian Company	250,000		

The reserve funds for the same period were, respectively:

Companies.	Reserve.	Companies.	Reserve.
First Company of Russia	$577,000	The Russian Company	$114,000
Second Company of Russia	166,250	Moscow Company	4,500
The Salamander	217,500	The Company of Warsaw	215,000
The Moscovite Company	629,000		

This makes a total of $1,923,250, or about 30 per cent. of the total stock capital. As to the Commercial and the Baltic companies, the reserve fund of the first was absorbed by losses which it sustained during the year 1889, and the latter does not distinguish the reserve fund from the stock capital in rendering its statement.

The reserve of premiums brought forward from the operations of 1888, as well as the premiums cashed by each of these companies during the year 1889, are stated in the following table:

Companies.	Reserve premiums brought forward from 1888.	Premiums cashed in 1889.	Total.
First Company of Russia	$650,500	$3,125,500	$3,776,000
Second Company of Russia	192,500	1,095,500	1,288,000
The Salamander	189,000	1,002,000	1,191,000
The Moscovite Company	257,000	2,076,500	2,333,500
The Russian Company	243,000	1,456,500	1,699,500
The Moscow Company	....	826,000	826,000
The Company of Warsaw	....	591,000	591,000
The Commercial Company	26,000	499,500	525,500
The Baltic Company	93,500	342,000	435,500
Total	1,651,500	11,014,500	12,666,000

From the above total of $12,666,000 there have been paid $6,366,000 for re-insurances and $2,728,500 have been absorbed in policies balanced, as well as those to be balanced, on account of the burning of insured houses and furniture. The remainder, with the deduction of $1,947,750 carried forward as a reserve fund for 1890, makes a gross benefit of $1,624,000 for the nine companies as obtained from the business of these companies.

The totals of re-insurances, policies balanced, and those to be balanced, as well as premiums to be carried forward to the reserve of 1890, are divided among the several companies in the following manner:

Companies.	Re-insurances.	Policies paid and to be paid.	Premiums carried forward.
First Company of Russia	$1,739,500	$801,750	$670,750
Second Company of Russia	700,250	272,000	178,000
The Salamander	602,250	313,500	179,750
The Moscovite Company	1,669,000	201,500	244,500
The Russian Company	850,500	414,500	219,500
The Moscow Company	270,000	237,250	116,500
The Company of Warsaw	....	198,000	241,500
The Commercial Company	360,000	156,000	30,500
The Baltic Company	174,500	134,000	66,750
Total	6,366,000	2,728,500	1,947,750

The sum of $1,624,000 represents the difference in favor of the companies between the amounts collected and those disbursed on account of insurances contracted, further increased by $700,500, the amount of various profits of the companies, making a total of $2,324,500, from which must be deducted $1,205,000, being the cost of administration and maintenance, leaving the net profits for 1889 at $1,119,500, or about 17 per cent. on the total amount of their stock capital and 14 per cent. on the stock and reserve fund combined.

The different amounts above mentioned are divided among the nine companies in the following manner:

Companies.	Gross profit from insurances.	Divers profits.	Cost of maintenance and other expenses.	Net profits.
First Company of Russia	$564,000	$217,500	$304,250	$477,250
Second Company of Russia	137,750	74,500	103,500	108,750
The Salamander	95,500	106,500	98,250	103,750
The Moscovite Company	218,500	160,500	83,000	296,000
The Russian Company	215,000	34,000	191,250	57,750
The Moscow Company	202,250	27,250	186,250	43,250
The Company of Warsaw	151,500	55,000	114,750	91,750
The Commercial Company	20,750	6,500	63,250	77,500
The Baltic Company	60,250	18,750	60,500	18,500
Total	1,624,000	700,500	1,205,000	1,119,500

The eight companies whose operations in 1889 have been balanced with profit have deducted, previously, the sum of $1,197,000 from the amount of their profits as follows: The tax received by the treasury on net profits of anonymous societies, $36,750; the portion of reserve funds, $81,000; statutory *tantieme* interests and other sums allowed to the directors and employés, $51,000. The remainder, $1,028,250, with the deduction of an insignificant sum of about $3,250 carried forward to 1890, has been distributed to the share-holders.

The dividend distributed to its share-holders by each of the companies in question has been per share:

Companies.	Amount.	Percentage.
First Company of Russia	$43.00	21½
Second Company of Russia	9.00	12
The Salamander	12.50	10
The Moscovite Company	25.00	25
The Russian Company	4.50	18
The Moscow Company	7.50	7½
The Company of Warsaw	7.50	12
The Baltic Company	....	5½

As to the Commercial Company, whose operations for the year 1889 were balanced by a loss of $77,500, it has had to carry this loss forward, a deduction being made of $5,500 taken from the reserve capital on account of the operations of 1890.

The result of the business of the six companies above mentioned as uniting different kinds of insurances is set forth as follows:

The St. Petersburg Society insures against fire and on life. Its stock capital is $1,200,000; statutory reserve fund, $50,000; extraordinary reserve, $223,000. The premiums collected during the year, with those of the preceding year, amounted to $825,000 for insurances against fire and $1,713,750 for life-insurances, against which the re-insurances, policies paid, as well as those to be paid, and the reserve of premiums to be carried forward to the next year have absorbed $668,750 and $1,603,000, respectively. Consequently, the gross profits of the company were $156,250 for fire-insurances and $110,750 for life-insnrances, making a total of $267,000. In adding to this amount the $123,000 forming the amount of interest received by the company on its bond balances, the total gross profit amounts to $390,000 and the net profit to $213,750, having deducted the cost of administration and maintenance, $176,250. From this sum were previously deducted $6,500 revenues to the treasury on account of the 3 per cent. tax, $7,500 to the profit of the directors, $15,750 to the extraordinary reserve fund, $180,000 in dividends to the share-holders (about 15 per cent. per share), and $4,000 to the profit of the employés' aid fund.

The Rossia insures against fire, accidents, transports and life. The capital of the society is $2,000,000; statutory reserve, $57,500.

Insurances.	Premiums carried from 1889.	Re-insurances, policies paid and to be paid, and premiums carried forward.	Gross profits.
Against fire	$1,580,500	$1,375,000	$205,500
Against accidents	89,750	65,550	24,000
On transports	412,250	357,500	55,000
On life	3,714,000	3,474,500	239,500
Total	5,796,500	5,272,550	524,000

In adding to the above amount of $524,000 the sum of $159,000, representing the interests collected on the bank balances of the company, the gross profits amount to $683,000; and, having deducted the cost of administration and maintenance, the net profit amounts to $460,250. The tax of 3 per cent. on the profits is included in the expenses and amounts to $222,750, of which $36,750 represents the part in the profits of the company coming to the insured and the remainder, namely, $186,000, the net profit of the company itself. From this last sum were deducted $63,000 for the reserve fund, of which $49,500 was to re-imburse an equal sum taken from this fund in 1889 to cover losses in 1888. One hundred and twenty thousand dollars have been distributed to the share-holders as dividends, amounting to $750, or 6 per cent., per share. The remainder, viz, $3,000, has been carried forward to the reserve fund of 1890.

The Northern Company does business in fire and transport insurances. Its stock capital is $600,000; statutory reserve, $138,500. The premiums brought forward from the previous year, as well as those collected during 1889, amounted for the two categories of insurances practiced by this company—fire and transports—to $1,412,000 and $453,000, respectively. On these amounts the re-insurances, the policies paid and those still to be paid, and the reserves of premiums carried forward to the next year have absorbed

$2,286,500 and $383,250, respectively, thus leaving to the company a profit of $125,500 and $69,750, making a total of $195,250. This sum was increased by $86,250, representing the various profits of the company, viz, interests on the bank balances, commissions, collection of doubtful debts, etc., and was decreased by $147,500 for cost of administration and maintenance, giving the company a net profit of $134,000 for the year 1889.

From this profit $96,000 were distributed as dividends to the share-holders, or 16 per cent. per share. Twenty-five hundred dollars were distributed among the employés as gratuity and the remainder, about $35,500, was consumed in the payment of the 3 per cent. tax and to the reserve fund.

The Yakor does business in fire, transport, and life insurances. The capital of the society is $1,250,000; statutory reserve fund, $10,000.

The results of the various insurances practiced by the society are given in the following table:

Description.	Reserves of premiums brought forward to 1890.	Re-insurance policies paid and premiums carried forward to 1890.	Gross profits.
Fire insurances	$1,216,000	$1,099,250	$116,750
Transport insurances	204,500	158,750	45,750
Life insurances	399,500	376,500	23,000
Total	1,820,000	1,634,500	185,500

Sundry profits, interest, etc., having amounted to $53,250, the total amount of gross profits was $238,750. The cost of administration and maintenance absorbed $166,500 of this sum, from which were deducted about $500 to the profit of persons having contracted life-insurance with participation in the profits of the company, about $2,000 for the payment of the 3 per cent. tax, $7,250 to the reserve fund, and the remaining $67,500 were distributed as dividends to the share-holders at the rate of 5 per cent. per share.

The Volga does business in fire-insurance and insurance on transports. The capital is $250,000, and it has $99,250 as a reserve.

The business in fire-insurances gave a gross profit of $67,000, and insurances on transports a gross profit of $13,000; premiums brought over from last year's operations and collected in 1889, $279,000 and $284,000; re-insurances, policies paid as well as those still to be balanced, and premiums still carried forward, $212,000 and $271,000. The interests and commissions received by the company having amounted to $17,000, the total gross profits summed up to $97,000, and the net profit, having deducted $60,500 representing cost of administration and maintenance, figures at $36,500. From this amount $27,500 were distributed at 9 per cent. per share to the share-holders, $7,000 were carried to the reserve fund, and the remainder was consumed in the payment of the 3 per cent. tax gratuities to the directors, employés, and the like.

The Nadejda does business in fire-insurances and on transports. The capital of the society is $250,000; special reserve capital, $250,000; statutory reserve fund, $231,000.

The premiums brought forward from the preceding year's business and collected in 1889, including the two kinds of insurance practiced by the company, amounted to $913,500, and the disbursements, re-insurances, policies paid and those still to be paid, and premiums carried forward amounted to $846,250, which leaves a profit of $67,500. The operations of transportation of goods are as follows:

Receipts	$2,329,500
Expenses	1,923,000
Gross profits	406,500

The interests and other gains of the company having amounted to $12,250, the gross profit appears to be $486,000, of which $436,500 have been absorbed by costs of administration, etc., and the remainder, $49,500, represents the net profit. From this amount $40,000, or 16 per cent. per share, were distributed as dividends to the share-holders, $5,000 were carried to the reserve fund, $3,000 given to the directors, and $1,500 paid to the treasury to satisfy the 3 per cent. tax.

The net profits of the six companies of the second group amounted to $729,000, or about 13 per cent. on their stock capital of $5,550,000, and only 11 per cent., if one considers the stock capital and reserve fund, which together amount to $6,609,000.

From this showing it may be seen that the various branches of insurance are being conducted in the Russian Empire with considerable profit. I may add, in closing this report, that but two American companies, the New York Life and the Equitable, of New York, are doing business in St. Petersburg, and these with apparent success.

J. M. CRAWFORD,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
St. Petersburg, November 12, 1890.

BUSINESS OPPORTUNITIES IN TUXPAN.

REPORT BY CONSUL DRAYTON.

Trade and commerce appears to have revived considerably during the quarter ending September 30, 1890. The exports from here to the United States have exceeded any of the previous quarters and have surpassed those of the foregoing one by $112,688.32. Imports have also increased, but the exact amount can not be correctly ascertained. In a business point of view appearances are much more encouraging.

Many letters have been received at this consulate requesting the purchase and shipment of articles, and in many cases the purchase-price for said articles has been limited, but not a cent advanced for purchase of same, thereby seemingly expecting the resident merchant to expend his own money and ship said articles at his own risk to the western merchant to be sold for what it might bring. Merchants here decline such propositions and reply that, if business transactions are requested, American merchants must appoint their agents here and advance the money necessary to procure said articles at the prevailing price, as there is no credit system, but cash on delivery; and for all business transactions a commission will be charged on all amounts of money expended for purchase and expenses on same.

Some representatives of mercantile houses came here expecting to do busisiness their own way and corner the vanilla and chicle market with a few thousand dollars; but, when informed of the large sums of money expended every week and of the difficulty of procuring the articles without a proper agent who could speak the language and was accustomed to the business, they left without accomplishing any thing.

Others again wish to know if a banking business of $50,000 capital could do any thing and what class of vaults would be necessary to secure their money. On being informed that an iron safe was sufficient, or they could do as the Mexicans used to do, dig a hole in the ground and cover it up, and that $50,000 could be spent any day in the week, especially on Sunday, which was the principal business day, they appeared much astonished and disappointed.

The truth is that they are all incorrectly informed as to the manners and customs of the country. Money deposited in any of the principal houses here is as safe as anywhere else, and, if business is to be transacted, they must appoint an agent in whom they place confidence, and also furnish the means to make the purchases.

Mexicans are just as sharp in trade as any other merchants, and, with proper confidence between the parties, business can be largely extended.

A banking house established with sufficient means and properly managed would be an accommodation to the merchants and community generally.

JOHN DRAYTON,
Consul.

UNITED STATES CONSULATE,
Tuxpan, October 8, 1890.

AMERICAN TRADE IN THE FRENCH WEST INDIES.

REPORT BY CONSUL KEEVIL, OF MARTINIQUE.

If American manufacturers desire to reap the harvest that is ripe for the sickle, they must pursue the same policy pursued by the merchants of England, France, and Germany, viz, send capable solicitors speaking the language of the people, but French language generally (as that is understood in all the islands), with samples and prices, free on board, passing to and fro continually to see the wants of the dealers, and likewise willing to fill any and all orders. The results would most certainly surprise them, for there can be no question but American manufactures of utility and beauty are sought for in these islands and preferred to all others by those who have them in use. The question for our manufacturers and merchants to decide is, is the trade worth the effort? I answer in reply that all the commercial world admits (reluctantly) that sooner or later the United States of America will absorb the larger portion of this trade.

Give the merchants of the southeastern West India Islands, from Barbadoes to St. Thomas, as frequent and regular mail facilities as they have with England, France, and Germany and the battle is won.

Those countries give, directly or indirectly, large premiums for carrying the mails to this and neighboring islands, and, as a result, we can get letters from England or France oftener and more regularly than from the United States. Another advantage in that respect is that the health and postal authorities will visit these vessels and receive mails at any hour of the day or night, whilst they only visit American steamers from 9 a. m. until sunset, as they are not considered mail lines.

At the closing of this report, just previous to mailing, information has been received at this consulate to the effect that the port authorities have placed steamers from American ports having mail on board on an equal footing with the mail steamers of other nations. This concession has been made at the earnest solicitation of American and local consignees of American goods, in conjunction with the consular officer of this district.

ALFRED B. KEEVIL,
Consul.

UNITED STATES CONSULATE,
Martinique, November 7, 1890.

THE ORANGE IN JAPAN.*

REPORT BY CONSUL SMITHERS, OF OSAKA AND HIOGO.

VARIETIES.

There are many varieties of the orange found in Japan, of which the most profitable are the Oonshin, Hira-Mikan, Koji, Kinkan, and Natsu-Mikan. In the prefecture of Osaka the location of the orange trees is about 3 miles distant from the sea at an elevation of 2,016 feet, and at Oritagun, in the province of Kii, they are located from half a mile to 3 miles from the sea at an elevation of 610 to 800 feet. A southerly exposure is the best for the tree, and the best soil a sandy loam with gravel about 3 feet from the surface. Hilly and rolling land is preferable for the Oonshin and Hira-Mikan varieties. The minimum temperature is 36° F.; maximum, 95°; and average, 65°.

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* Prepared from information obtained from the governor of the Hiogo Ken and from facts furnished by Mr. A. Moore, an English gentleman engaged in exporting young trees to California.

The Oonshin.—In every respect the Oonshin is the best variety. The tree, or more properly the bush, grows to the height of 10 or 12 feet, and covers a space 22 or 23 feet in diameter, or 70 feet in circumference. It branches close to the ground, and, not being pruned, the weight of the fruit causes the branches to lie on the ground, completely covering the trunk. They are extremely prolific, and, as the fruit is not thinned out when small, it does not often attain a size of over 3 or 3½ inches in diameter, and the majority are not over 2½ inches in diameter. Like all other fruit, they are packed by the Japanese when green and sour as early as the first of October, and are gathered and packed by December, when they are stored, keeping so well as to be found in the market as late as the end of May. The fruit of the Oonshin is flattened at the poles, the rind peels off very easily, and the segments part as readily. When the orange is cut horizontally, the juice is so abundant that it runs over freely. They are practically seedless. Out of two hundred only two were found to have seeds. Their flavor is very pleasant—sweet, but not too sweet—and is much liked by foreigners in Japan and China.

The Hira-Mikan.—The Hira-Mikan, sometimes called Kishin-Mikan or Kino-Kuni-Mikan, is a smaller fruit than the Oonshin, and, though it has a few seeds, it is desirable. The tree grows to the height of 30 feet, is an immense bearer, and is as hardy as the Oonshin.

The Kinkan.—The Kinkan, known in China as the Cumquot, or golden orange, grows to the height of 16 feet, and is very prolific. There are two kinds—the *marumi* (round fruit) and the *naga-mi* (long fruit). It contains four or five seeds and is palatable—eaten raw, rind and all—but its chief use is as a preserve in sirup or crystallized. It has long been popular, both in Japan and China, when treated in this way.

HOW PROPAGATED.

The orange-tree is propagated in Japan by grafting on the sour stalk the *Citrus trifoliata,* or native wild orange, which is so extremely hardy that it does not appear to suffer with cold. It grows to the height of 25 to 30 feet. The fruit is perfectly round, somewhat larger than a billiard-ball, and full of seeds. The stock for grafting is propagated from these seeds. The young plants are replanted each spring, and after two years are ready for grafting. The leaf is trifoliate, like the clover. The tree is very thorny, and it is deciduous. The sap falls in the winter and does not rise till late in the spring, and it is to this that the extreme hardiness of trees grafted in this stock may be attributed. The Japanese do not appear to give the same attention to the cultivation of orange-trees as cultivators in California and Florida do, allowing vegetables and corn to grow between the trees, which are planted so close together that the branches often interlock. The irrigation, which takes place only in the dry season, is done by pails, and the liquid manure is distributed with dippers by hand. There are no nicely laid out groves, as in the United States, but irregular patches, and many trees are planted on the hill-sides in terraces, the same way as rice and other products.

INSECTS.

No attention is paid to insects beyond burning the cocoons of the chrysalis or beetles. The scale is injurious in some parts and almost unknown in others, as may be seen by the smooth-skinned oranges from Arita.

NURSERIES.

The principal nurseries where the young trees are propagated are about 12 miles from the sea, and are protected in the winter till the third year with coarse straw matting roughly tied round, the idea being to preserve the young growth, and not because they fear injury to the matured branches. As the Japanese see no beauty in an upright tree, but rather prefer them crooked or dwarfed, the young trees are not staked or trained. One reason for preferring the low tree is that they can pick the fruit without ladders, and another reason is that the branches keep the ground cool and more moist than if exposed to the sun. As the tree is not a rapid grower, although it produces fruit at an early stage, it would not be a difficult or expensive thing to cover them with a light frame-work and awning during the cold weather in such parts of the United States where the climate is intemperate, rather than be deprived of so valuable and ornamental a tree.

THE MARKET PRICE OF OONSHIN.

The market price of the Oonshin in Japan is from 2 to 5 silver yen* per thousand, according to size and quality, and considerable shipments are made to San Francisco, but, owing to their being packed in light boxes, often arrive in bad condition.

E. J. SMITHERS,
Consul.

UNITED STATES CONSULATE,
Osaka and Hiogo, November 3, 1890.

SALT IN GERMANY.

REPORT BY CONSUL-GENERAL EDWARDS, OF BERLIN.

The latest monthly statistical report of the German Empire publishes, under the title "Salt in the German Customs District," information in regard to the production and consumption, the taxation, importation, and exportation for the fiscal year 1889-'90 and for the ten years from 1880-'81 to 1889-'90. In the last-mentioned year there were in operation fourteen salt-producing mines, sixty-four salt-works producing evaporated salt, and fourteen factories producing salt as a secondary product. Of rock-salt of all kinds 500,090 tons were produced, much more than in the preceding years (in 1888-'89, only 388,529 tons; in 1887-'88, 386,329 tons). On the other hand, the production of evaporated salt (486,281 tons) was materially less than in the preceding year (510,902 tons). With the beginning of the fiscal year 1889–'90, in consequence of a trust formed by proprietors of salt-works, the wholesale prices of evaporated salt rose considerably.

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*1 silver yen=91.7 cents.

The importation of salt (chiefly English evaporated salt) into the German customs territory amounted to 26,825 tons (28,057 tons in the preceding year and 26,112 tons in 1887–'88), and was small as compared with the export from the German customs territory, which in the past year amounted to 192,258 tons (134,171 tons in 1888–'89 and 125,748 tons in 1887–'88).

Of domestic and foreign salt together 364,667 tons (1888–'89, 371,869 tons; 1887–'88, 360,341 tons) were placed upon the open market after payment of tax for use as table salt, which was 7.5 kilograms per head of population; 432,216 tons paid no tax, as being intended for cattle and for industrial purposes (1888–'89, 390,812 tons; 1887–'88, 388,085 tons), or 8.8 kilograms per head of population. The use of salt for industrial purposes increased materially as compared with the preceding year, especially in soda and Glauber's salts factories (251,450 tons, as compared with 207,417 tons in 1888–'89 and 220,810 tons in 1887–'88), in chemical and color works (29,796 tons, as compared with 21,294 tons in 1888–'89 and 21,100 tons in 1887–'88), in the leather industry (16,705 tons, as compared with 14,335 tons in 1888–'89 and 12,232 tons in 1887–'88), and in the metal ware industry (15,119 tons, as compared with 10,438 tons in 1888–'89 and 8,825 tons in 1887–'88). On the other hand, the use of salt for feeding cattle decreased (100,727 tons, as compared with 119,440 tons in 1888–'89 and 108,498 tons in 1887–'88), which was due to the good quality of the cattle food harvested in 1889.

W. H. EDWARDS,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Berlin, November 11, 1890.

NEW PROCESS OF FIRING PORCELAIN.

REPORT BY COMMERCIAL AGENT GRIFFIN, OF LIMOGES.

The large porcelain factories at Limoges have been for a long time studying the question of reducing the price of fuel. At a late congress of the manufacturers it was said that some new and cheap way of manufacturing porcelain must be found for France or the industry which has become so famous and which employs so many of the inhabitants would be driven from French soil because of the cost of firing. It was there ascertained that the cost of firing china in Bohemia was not more than 10 francs per ton; in England it was only 13 francs per ton; for the same thing in France, at Limoges, the cost was 34.50 francs. This is an immense difference, making it impossible for the French manufacturers to make their china as cheaply as their foreign neighbors. Various devices have been tried, but with little success. In order to compete, wages have been reduced to the lowest minimum, and still the manufacturers have in many cases lost money. The coal that is employed is necessarily costly, as a smokeless, long-flame variety is required. Many of the factories burn wood only, as that produces a purer white than the very best kinds of coal; but wood is dearer than coal. It is consequently only used in firing the muffles and in the finest grades of porcelain. A few years ago a new process was tried that baked the porcelain in a short time, but the cost made the process impracticable.

It was under such circumstances as these that one of the most progressive houses in Limoges was induced to employ petroleum or residuum oils as a fuel. To accomplish this an American firm using the Wright burner was requested to come and make a trial with the fuel. There was very much doubt and fear connected with the experiment; but after a while it was attempted, and the results were far better than anticipated. The heat was shown to be absolutely pure. No gases or smoke in any way discolored the china, which came from the kiln much whiter and in better condition than when it is fired with the best of wood. In the muffles there was a most decided advantage. The delicate colors, which show at once the presence of the slightest quantity of gas, were perfect.

This new discovery promises to revolutionize the whole porcelain industry. It is estimated that by employing these oils there will be a reduction of about 15 or 20 per cent. in the making of china. The only question now is the present classification of residuum oils, as the present duty on petroleum (120 francs per ton) is prohibitive; but strong pressures are being brought to bear on the Government now to have fuel oils classified as fuel, which pays only 1.30 francs per ton. New hope is given to an industry that was greatly threatened, and it is very probable that the French porcelain, which all have admired so much in the past, will be brought to a greater state of perfection by this new and American invention.

WALTER T. GRIFFIN,
Commercial Agent.

UNITED STATES COMMERCIAL AGENCY,
Limoges, December 22, 1890.

Imports and exports of Spain (correction).—Consul Turner, of Cadiz, desires to make the following corrections in his report on the "Imports and Exports of Spain," published in No. 121, October, 1890: On page 378, third paragraph, the duty collected on petroleum during the "six months" ended June 30, 1890, should read "fiscal year;" on page 383, class 12, "corn flour" should read "wheat flour;" on page 384, the word "meals," immediately following "other kinds of spirits," should read "preserved food;" on page 385, immediately under the word "copper," the word "sheet" should read "shell;" on page 386, immediately under the line "silk-worm pods," "sewing-machines" should read "velvet;" on page 389, immediately following the word "canary-seed," the word "meals" should read "preserved foods." It is hardly necessary to add that these errors occurred in the office at Cadiz, for the report is printed just as it was received at the Department.

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